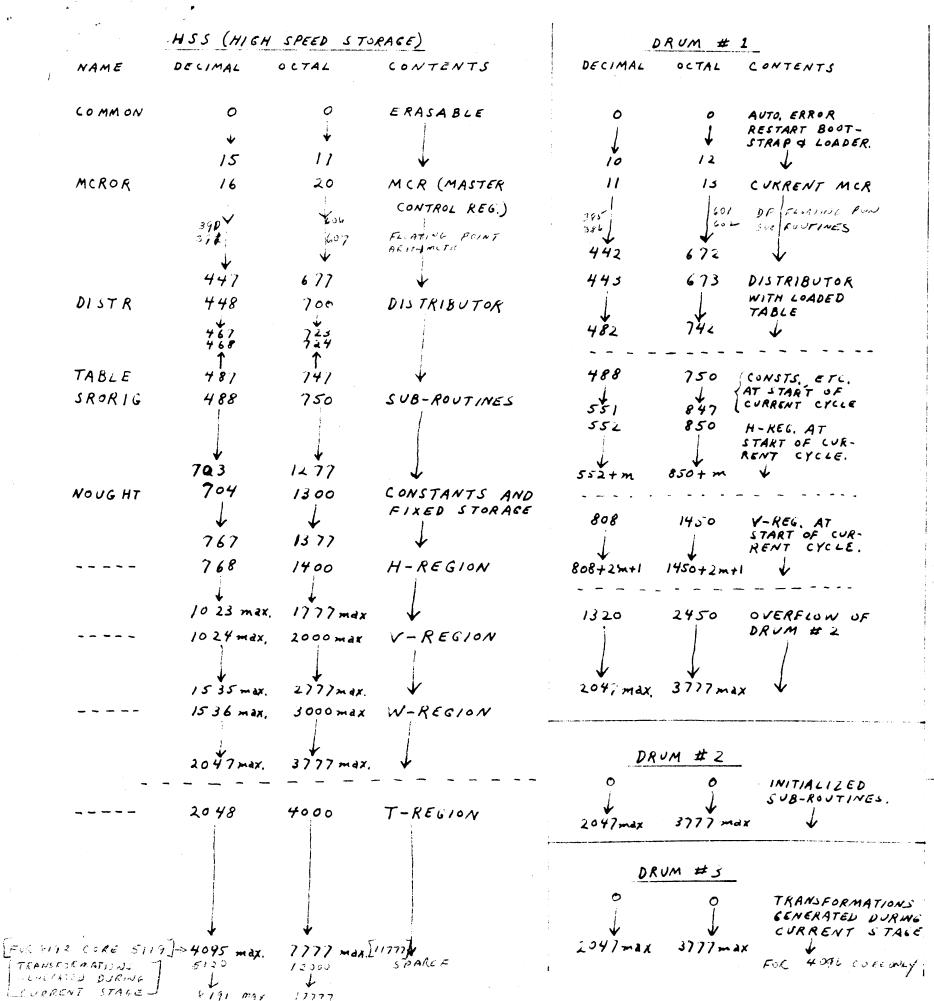


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17777

```
DRUM # 4
DECIMAL OCTAL CONTENTS
                TRANSFORMED
                 PLP CHANGE
                 VECTOR
 5/1 max 777 max
         1000
                Given PLP
                CHANGE VECT,
 1023 max 1771 max
 1024
        2000
                LATEST
                 PRICING VECT
1535 max 2777 max
        3000
                CURRENT
                RT.-HAND
                SIDE.
 2047max 3717max 4
     TAPES
```

(DATA ASSENDLY - ECD ONTA) #2 TRANSFORMATIONS FROM ALL COMPLETED STAGES, ONE RECORD PER STAGE (FROM UR. #3) #3 , USED ALTERNATELY. # 45 CONTAIN THE RECORDS OF TAPE #2 IN REVERSE ORDER FOR BACK TRANSFAW

#5 MATRIX IN CONDENSED FORM.

#6 (OPTIONAL) BCD INFORMA-TION FOR LATER PRINTING

| FORCES END OF STATE

#2 SUPPRESS DELTA CHECK

#6 LOAD SCALE FACTOR

FROM (ARD.

SENSE SWITCHES (ON)

PRINT TO TAPE # 6.

#4 CYCLE PRINT TO BELLE TAPEL

CYCLE PRINT TO PRINTER

CARD LOADING SEQUENCE

- O. SELF-LOADING CARD CONTAINING ORIGIN
- " " LOADER 1.
- 2. EXECUTIVE LOADER, BLANK DISTRI. BUTOR, AND ERROK KESTART BOOTSTR
 - a. TAKES CONTROL VIA TRANSITION CARD
 - G. CLEAR'S DRUMS, PLANTS BONTSTRAP ON DRUM #1, KENINDS TAPES.
- 3. PREFACE, SUB-ROUTINE, TITLE (TRANS) CD
 - a. LOAD TO PROPER HIS LOCATIONS
 - S. CONTROL TO PREFACE TO INITIAL-ILE, I.E. AN INTERLUDE.
 - L. CONTROL TO EXEC. LOAVER TO STOKE J.-R. ON DKUM, CONSTRUCT THULE IN DISTRIBUTOR
- 4 REPEAT 3, UNTIL -O TITLE WHICH MEANS MICK HAS LEEN LOAVED.
- J. O TEKE MICK HIVL DIOTALE JTOK ON DRUM LONTAIL TO MIK IN HILL.
- E. LEAD NATA THUER CONTRAL MICK. (x. CONSTAITS AND FIXED STON. " - JANEMY CIMITIAN EALIS HEHWING
- SEL OFISH VECT . 15 KT-MAVL LIVE FOR RE-
 - E. TRAKFING FUT SHA ME SELTEN 1 = A -1.
 - F. July charled to wind in a port
 - g. MATRIX (IF NOT ALREADY ON TAPE
- A. SCALE FACTOR CARD, IF AVY. (NHEN STARTING, c = & AND @ = f.)

SENSE LIGHTS

- #1 ON DUKING PLY OPERATIONS
- #1 ALTERNATOR; SUPPRESS DELTA CHK.
- #3 CONTROL ARITHMETIC OPERS.
- #4 SIGN MEMORY
- (THE STATUS OF THE LIGHTS HAVE NO EXTERNAL SIGNIFI-CANCE EXCEPT POSSIBLY # 1.)

DICTIONARY OF SYMBOLS USED IN 704 LINEAR PROGRAMMING CODE

LOCATION OCTAL	SYMBOL		
01333	SPAREF	DEC	5120 FOR 8192 CORE THIS IS THE ORIGIN FOR THE ETA VECTORS OF THE CURRENT STAGE
01334	1MAND1		COMPUTED BY THE DATA ASSEMBLY FROM THE PARAMETER MITHE VALUE M+1 IS STORED IN THE ADDRESS PART OF THE WORD
01335	2MAND2		2M+2 STORED IN THE ADDRESS PART OF THE WORD
01336	2MAN2D		2M+2 STORED IN THE DECREMENT PART OF THE WORD
01337	HORIGN	DEC	768 ORIGN FOR THE BASIS HEADINGS
01340	VORIGN	DEC	768+M+1 ORIGIN FOR THE DOUBLE PRECISION FLOATING POINT BETA VECTOR
01341	WORIGN	DFC	768+3M+1 ORIGIN FOR A DOUBLE PRECISION VECTOR. THIS IS A WORK REGION THAT LOADS THE RIGHT HAND SIDE AND IS USED TO COMPUTE PI VECTOR. FTA VECTOR AND TO TRANSFORM A COLUMN VECTOR
01342	TORIGN	DEC	ORIGIN FOR CORE STORAGE FOR MATRIX OR ETA VECTORS FROM TAPE
01343	FAZTYP		COMPUTED BY DATA ASSEMBLY FROM THE PARAMETER Z ZERO MEANS PHASE 2
01344	ARBTRS		COMPUTED BY COMPOSITE MCR IS THE NUMBER OF NEGATIVE BASIS HEADINGS. THESE VECTORS ARE TO BE BROUGHT INTO THE BASIS
01345	FAZNUM		COMPUTED BY THE DATA ASSEMBLY FROM THE PARAMETER Q
01346	PRICEX		COMPUTED BY THE DATA ASSEMBLY FROM THE PARAMETER Q. IT IS EQUAL TO 20-2 AND IS TWICE THE ROW NO. OF THE FIRST ROW TO BE OPTIMIZED. THE PROGRAM REDUCES THIS NO AT THE END OF ANY PHASE
01347	FEASYX		COMPUTED BY THE DATA ASSEMBLY FROM THE PARAMETER Q. IT IS EQUAL TO 20 AND IS TWICE THE POW NO. OF THE FIRST ROW ON WHICH FEASIBILITY MUST BE MAINTAINED. IT IS REDUCED AT THE END OF PHASE ONE AND REMAINS AT THE SAME VALUE AFTER FAZTYP EQUALS ZERO
01350	ITERNO		ITERATION NUMBER THIS NO. IS RESET TO ZERO WHENEVER THE INVERSION ROUTINE IS USED
01351	STAGES		THE NUMBER OF END OF STAGE PROCEDURES THAT HAVE BEEN DONE. IF THE STAGE NO. IS NOT ZERO, THEPE ARE ETA VECTORS ON TAPE
01352	DR 3 LIM		CURRENT NO. OF WORDS USED TO STORE THE ETAS OF THE CURRENT STAGE. WHEN THIS EXCEEDS DP3FND. END STAGE

01353	DR3FND	DEC	3066-2M THESE	-2 FOR 4096 CORE -2 FOR 8192 CORE NUMBERS ARE COMPUTED BY THE DATA ASSEMBLY. THIS IS ITING NO.OF WORDS AVAILABLE FOR ETA VECTORS IN ONE
01354	TPALTR	PZE	0,0,1	TAPE ALTERNATOR CONTROLS THE READING OF TAPE 3 OR TAPE 4 WHEN COMPUTING THE PI VECTOR. THE TAPE READ IS TAPE 4 MINUS THE ADDRESS OF TPALTR. THE DATA ASSEMBLY SETS THIS CELL WITH ONE IN THE DECREMENT AND ZERO IN THE ADDRESS. AT AN END OF STAGE THESE NUMBERS ARE INTERCHANGED.
01355 01356	SCALHI SCALLO	DEC DEC	1024	SCALHI AND SCALLO REPRESENT A FIXED POINT DOUBLE PRECISION NUMBER. THIS IS THE E/P USED TO START THE COMPUTATION OF PI. NORMALLY IT IS ONE BUT ANOTHER VALUE MAY BE LOADED SUBJECT TO SENSE SWITCH 6 WHEN LOADING DATA OR AFTER FEASIBLE SOLUTION STOP
01357	MCRTRA	TRA	MCRORG	THIS TRANSFER IS USED BY THE PICKUP FROM DRUM SUB POUTINE AND BY THE EXECUTIVE LOADER
01360	INDEXR			THE DECREMENT CONTAINS TWICE THE INDEX NO. OF THE POSITION IN THE BASIS THAT WAS CHANGED
01361	INDEXS			THE NAME OF THE VECTOR SELECTED TO COME INTO THE BASIS. IT IS STORED IN BCD
01362 01363	SPARP1 SPARP2			TEMPORARY STORAGE TEMPORARY STORAGE
01364	AORIGN			ORIGIN FOR VECTOR LOCATIONS IS USED BY SUBROUTINES. IN CODE 8 AORIGN EQUAL ZERO TRANSFERS CONTROL TO INVERSION ALGORITHM FOR SELECTION OF INDEXR
01365	BORIGN			ORIGIN FOR VECTOR LOCATIONS IS USED BY SUBROUTINES
01366 01367	HISCAR LOSCAR			DOUBLE PRECISION NUMBER USED AS A SCALAR IN VECTOR ARITHMETIC
01370	HIBEST LOREST			DOUBLE PRECISION NUMBER STORAGE USED FOR COMPARISON IN SEARCH FOR MINIMUM D/J OR THETA
01372	LOWAXA HIWYXA			STORAGE LOCATION FOR VALUE OF CURRENT OPTIMAL
11374	PRCODE			STORAGE FOR PRINT CODE
1375	STATUS			WHEN CELL IS NON-ZERO THERE ARE MEGATIVE VALUES IN THE SOLUTION
1376	CROXON			THE DISTRIBUTOR STORES THE CONTENTS OF INDEX REGISTER 4 IN THE DECREMENT IS THE EXIT FROM THE

SUB ROUTINE

01377 CBOXTW

USED BY SUB ROUTINES TO STORF CONTENTS OF AN INDEX REGISTER IN THE DECREMENT STORE SOLUTION PUTS THE CHECK SUM OF INFORMATION GOING ON DRUM INTO THIS CELL

SUB ROUTINE SYMBOLS

	LDATA	CODE 1	LOADS BINARY DATA
	STSOL	CODE 2	STORES K. H. V. REGIONS ON DPUM 1 .
	FORMC	CODE 3	FORM ROW F/I FOR COMPUTING PI. NOTE IF THERE ARE INFEASIBLE BETAS
	BTRAN	CODE 4	COMPUTE ROW VECTOR PI
	PRICE	CODE 5	PRICE THE MATRIX. CHOOSE VECTOR TO BRING INTO BASIS
	LDFLV	CODE 6	LOAD VECTOR CHOSEN IN CODE 5 IN SPECIFIED REGION AS A DOUBLE PRECISION FLOATING POINT VECTOR
	FTRAN	CODE 7	TRANSFORM COLUMN VECTOR IN TERMS OF INVERSE OF CURRENT BASIS
	CHUZR	CODE 8	FIND MINIMUM THETA SELECT POSITION IN BASIS TO CHANGE
	ELIMN	CODE 9	COMPUTE ETA VECTOR AND TRANSFORM BETA
	YTODR	CODE 10	FOR 4096 CORE STORAGE CONDENSE FTA VECTOR TO INDEXED NON ZERO ENTRIES STORE ON DRUM 3
	OR		
,	YTOXM	CODE 10	FOR 8192 CORE STORAGE CONDENSE ETA VECTOR TO INDEXED NON ZERO ENTRIFS STORE IN CORE STORAGE STARTING WITH LOCATION SPECIFIED BY SPAREF
	CHECK	CODE 11	MULTIPLY MATRIX TIMES BETA VECTOR AND SUBTRACT RIGHT HAND SIDE. LEAVE RESULT AT TORIGN AND UP
	PRINT	CODE 12	PRINT PROGRAM
	RERYT	CODE 13	END OF STAGE PROCEDURF TRANSFERS ETA VECTORS FROM DRUM 3 OR STORAGE TO TAPE AND PUNCHES BINARY CARDS FOR K, H, AND V REGIONS
	PIKUP	CODF 19	AU OMATIC RESTART PROGRAM FROM DRUM RESTORE CONF STORAGE AND TRANSFERS CONTROL TO COMPUTE NEXT IT RATION UNLESS SENSE SWITCH 2 IS DOWN. THEN IT

CALLS FOR A NEW MCR FROM CARDS AND HALTS

OTHER POUTINES

DRBOOT BOOTSTRAP ROUTINE FROM DRUM 1 -- TRAMSFERS CONTROL TO PIKUP

DISTRB RECALLS SPECIFIED SUB ROUTINE FROM DRUM. CONTAINS A TABLE

WHICH LOCATES THE SUB ROUTINE

EXECLD MASTER LOAD PROGRAM FOR SUB ROUTINES AND MCR. CREATES THE

DRUM TABLE FOR DISTRB. TRANSFERS CONTROL TO THE MCR AFTER

PROGRAM DECK HAS BEEN LOADED

NOTES ON LOADING

THE FIRST LOADER OF THE DECK LOADS DRBOOT, THE DOUBLE PRECISION FLOATING POINT SUBROUTINES, DISTRB, AND EXECLD. THE TRANSFER CARD AT THE END OF EXECLD TRANSFERS CONTROL TO THE FIRST LOCATION OF EXECLD.

704 LINEAR PROGRAMMING SYSTEM OF CODES. ALPHABETIC FOR UA SYMBOLIC ASSEMBLY PROGRAM.

00000	ORG		
00000	COMMON BSS		
00000	ORG		
00000 1 00011 4 00001	DRBOOT TXI		
00001 0 70000 4 00013		11:4	
00002 2 00001 4 00001		1,4,1	
00003 0 70000 0 00020		MCRORG	
00004 0 53400 4 00011		9.4	
00005 0 70000 4 00750		ZTABLE+1+4	
00006 2 00001 4 00005		5,4,1	
00007 0 50000 0 00012	CLA	10	
00010 0 02000 0 00700	TRA	DISTRB	
00011 +000000000727	DEC	471 NO	WORDS IN MCR DPFADD DPFMUL AND DISTRB - 1
00012 +0000000000023	. DEC	19	
00020		16	
00020	MCRORG BSS		
00607 -0 60000 0 00002	DPFADD STQ		ADDEND IN ACC-MQ, AUGEND IN
00610 0 30000 0 00000	•	COMMON	- COMMON-COMMON+1
00611 0 16100 0 00632		ADOVFL+2	LO-PART OVERFLOW IMPOSSIBLE
00612 0 60100 0 00003		COMMON+3	IF HI-PART ZERO SO IS LO-PART FOR
00613 -0 60000 0 00004		COMMON+4	NORMALIZED NUMBERS
00614 0 50000 0 00002		COMMON+2	
00615 0 30000 0 00001		COMMON+1	
00616 -0 76000 0 00001	ADUNFL PBT		AMBELON THREE CONTRACTOR
00617 0 02000 0 00622		ADUNFL+4	OVERFLOW IMPOSSIBLE ON LO-PARTS
00620 0 76000 0 00000 00621 0 14000 0 00622	CLM	ADUNFL+4	UNDERFLO IMPOS IF HI-PARTS OVERFLOWED
00622 -0 30000 0 00004			CLEAR ACC TOGGLE
00622 -0 36000 0 00004		COMMON+4 ADUNFL+6	CLEAR NO TOCCLE
00624 0 30000 0 00003		COMMON+3	CLEAR MQ TOGGLE
00625 -0 60000 0 00002		COMMON+2	ALIGN CHARACTERISTICS
00626 0 30000 0 00002		COMMON+2	ALIGN CHARACTERISTICS
00627 0 16100 0 00632		ADOVFL+2	
00630 -0 14000 0 00635	ADOVEL THO		
00631 0 02000 4 00001		1,4	
00632 0 50000 0 01300		NOUGHT	
00633 0 56000 0 01300		NOUGHT	
00634 0 14000 0 00635		ADOVFL+5	CLR TOGGLE AFTER DOUBLE UNDFLO
00635 0 02000 4 00002		2,4	
00636 0 60100 0 00000	DPFMUL STO		MUL-ND IN ACC-MQ, MUL-ER IN
00637 -0 60000 0 00001	STQ	COMMON+1	HISCAR-LOSCAR
00640 0 56000 0 01366		HISCAR	
00641 0 26000 0 00000		COMMON	HI BY HI
00642 -0 14000 0 00652		MPOVFL+5	CHECK FOR OVFLO OR UNDFLO IN ACC
00643 0 77100 0 00001	ARS		
00644 -0 76000 0 00001	PBT		CHECK FOR UNDFLO IN ACC
00645 0 02000 4 00001	MPOVFL TRA	1 • 4	
00646 0 16100 0 00647	TQO	MPOVFL+2	CLEAR MQ TOGGLE
00647 0 50000 0 01300		NOUGHT	
00650 0 56000 0 01300	LDQ	NOUGHT	

```
00651 0 02000 0 00676
                                TRA CAROVE
00652 0 16100 0 00647
                               TQO MPOVFL+2
                                                      TEST FOR UNDFLO IN MQ
00653 0 60100 0 00002
                                STO COMMON+2
00654 -0 60000 0 00003
                                STQ COMMON+3
00655 0 56000 0 01366
                                LDQ HISCAR
00656 -0 26000 0 00001
                               UFM COMMON+1
                                                     HI BY LO
00657 0 60100 0 00004
                               STO COMMON+4
00660 -0 60000 0 00005
                               STQ COMMON+5
00661 0 56000 0 01367
                               LDQ LOSCAR
00662 -0 26000 0 00000
                               UFM COMMON
                                                     LO BY HI
00663 0 16100 0 00671
                               TQO MPYSUM+3
                                                     TEST UNDFLO IN LO-LO PRODUCT
00664 0 60100 0 00000
                               STO COMMON
00665 -0 60000 0 00001
                               STQ COMMON+1
00666 0 50000 0 00001
                        MPYSUM CLA COMMON+1
00667 -0 30000 0 00005
                               UFA COMMON+5
                                                     SUM OF LO-LO PARTS
00670 -0 30000 0 00000
                               UFA COMMON
00671 -0 30000 0 00004
                               UFA COMMON+4
                                                     SUM OF CARRIES TO FINAL LO PART
00672 -0 30000 0 00003
                               UFA COMMON+3
00673 0 16100 0 00674
                               TQO CAROVF-2
00674 0 30000 0 00002
                               FAD COMMON+2
00675 0 16100 0 00647
                                TQO MPOVFL+2
00676 -0 14000 4 00002 CAROVF TNO 2,4
                                                     CHECK OVFLO FROM CARRIES
00677 0 02000 4 00001
                               TRA 1,4
                 00700
                               HED
                                                     HEADING FOR DISTRIBUTOR EXCEPT DISTRB
00700 -0 63400 4 0/376 DISTRB SXD CBOXON:4
00701 0 73400 4 00000
                               PAX 0,4
00702 -3 00000 4 00704
                               TXL DISTRB+4,4
                                                     TEST FOR CODE 0 *SUB-MCR)
00703 0 50000 0 00723
                               CLA LDRTN+4
00704 0 40000 4 00747
                               ADD TABLE,4
00705 0 77100 0 00022
                               ARS 18
00706 0 62100 0 00717
                               STA LDRTN
00707 0 62100 0 00722
                               STA LDRTN+3
00710 0 77100 0 00017
                               ARS 15
00711 0 40000 0 00723
                               ADD LDRTN+4
00712 0 62100 0 00713
                               STA DRSEL
00713 0 76200 0 00000
                         DRSEL RDS
00714 0 50000 4 00747
                               CLA TABLE,4
00715 0 46000 4 00747
                               LDA TABLE,4
00716 -0 73400 4 00000
                               PDX 0.4
00717 0 70000 4 00000
                         LDRTN CPY 0,4
00720 2 00001 4 00717
                               TIX LDRTN.4.1
00721 -0 73400 4 00000
                               PDX 0,4
00722 0 02000 4 00000
                               TRA 0,4
00723 0 00750 0 00301
                               HTR 193,0, SRORIG
                 00747
                         TABLE BES 19
                                                     O OR 1 IN PREF, NO ORDERS IN DECR., DR. AD-
00747 0 00000 0 00000
                               PZE
                                                     *SPACER)
                                                                    DRESS IN ADDRESS
                 00750
                        SRORIG BSS 216
01300 +000000000000
                        NOUGHT DEC
                                                       FIXED CONSTANTS-STANDARD THRUOUT
01301 +000000000001
                        ONEADR DEC 1
01302 +0000000000002
                        TWOADR DEC 2
01303 +0000000000003
                        THREEA DEC 3
01304 +000000000005
                        FIVEAD DEC 5
01305 +000000000200
                        128ADR DEC 128
01306 +0000000000205
                        133ADR DEC 133
01307 +000000000215
                        141ADR DEC 141
```

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TRUHAE OCT 200000000000
01310 +200000000000
                        INFINY OCT 3777777777
01311 +37777777777
                        27CHAR OCT 033000000000
01312 +033000000000
                        54CHAR OCT 066000000000
01313 +066000000000
                        FLZERO OCT 146000000000
01314 +146000000000
01315 +201400000000
                        FLUNTY OCT 201400000000
                        MASKCH OCT 377000000000
01316 +377000000000
                        MASKER OCT -000777777777
01317 -000777777777
                        MASKAD OCT 000000077777
01320 +000000077777
                        MASKNA OCT -377777700000
01321 -377777700000
01322 +077777000000
                        MASKDE OCT 077777000000
                        DPFXUN DEC 1024
01323 +000000002000
                                                        ORIGIN ON DRUM 4 OF RT-HAND SIDE
                        BDRORG DEC 1536
01324 +000000003000
                                                                             PRICING VECTOR
                        PDRORG DEC 1024
01325 +0000000002000
                                                                             PLP CHANGE VECT
                        EDRORG DEC 512
01326 +000000001000
                                                        ORIGIN ON DRUM 1 OF CONSTANTS
                        KDRORG DEC 488
01327 +000000000750
                                                                             H-REGION
01330 +000000001050
                        HDRORG DEC 552
                                                                             V-REGION
                        VDRORG DEC 808
01331 +000000001450
                        BORROW OCT 031400000000
01332 +031400000000
                         SPAREF DEC 5120
01333 +000000012000
                               ORG SPAREF+1
                 01334
                                                        PROBLEM CONSTANTS-VALUES PROVIDED
01334 +0000000000000
                        1MAND1 DEC
                                                                BY DATA ASSEMBLY
                        2MAND2 DEC
01335 +000000000000
                        2MAN2D DEC
01336 +000000000000
                        HORIGN PZE 768
01337 0 00000 0 01400
                         VORIGN DEC
01340 +000000000000
                         WORIGN DEC
01341 +0000000000000
                        TORIGN P7E 2048
01342 0 00000 0 04000
                                ORG TORIGN+1
                 01343
                         FAZTYP DEC
01343 +0000000000000
                         ARBTRS DEC
01344 +0000000000000
                         FAZNUM DEC
01345 +000000000000
                         PRICEX DEC
01346 +000000000000
                         FEASYX DEC
01347 +000000000000
                         ITERNO DEC
01350 +000000000000
                         STAGES DEC
01351 +000000000000
01352 +000000000000
                         DR3LIM DEC
                         DR3END DEC 2042
01353 +0000000003772
                        TPALTR PZE 0,0,1
01354 0 00001 0 00000
                         SCALHI DEC 1024
01355 +0000000002000
                         SCALLO DEC
01356 +000000000000
                        MCRTRA TRA MCRORG
01357 0 02000 0 00020
01360 +0000000000000
                         INDEXR DEC
                         INDEXS DEC
01361 +000000000000
                         SPARPI DEC
01362 +000000000000
01363 +0000000000000
                         SPARP2 DEC
                                                         FIXED LOCATIONS-ZERO INITIALLY
                         AORIGN DEC
01364 +000000000000
                         RORIGN DEC
01365 +0000000000000
                         HISCAR DEC
01366 +000000000000
                         LOSCAR DEC
01367 +0000000000000
01370 +0000000000000
                         HIBEST DEC
01371 +000000000000
                         LOBEST DEC
                         HIMAXV DEC
01372 +000000000000
                         LOMAXV DEC
01373 +000000000000
                         PRCODE DEC
01374 +000000000000
```

3

```
STATUS DEC
01375 +000000000000
                        CBOXON DEC
01376 +0000000000000
                        CBOXTW DEC
01377 +000000000000
                               ORG 1536
                 03000
                                                       HEADING FOR EXEC LDER EXCEPT PREFAC-EXECL
                 03000
                               HED
                       X
                        EXECLD LXA COUNT,5
03000 0 53400 5 03052
                               WDR 1
03001 0 76600 0 00301
                               LXA SBOOT 1
03002 0 53400 1 03003
                         SBOOT CPY 11,1
03003 0 70000 1 00013
03004 2 00001 1 03003
                               TIX SBOOT 111
03005 0 77200 4 00206
                               REW 6.4
03006 2 00001 4 03005
                               TIX 5B00T+2,4,1
                               SWT 3
03007 0 76000 0 00163
                               TRA REW6+1
03010 0 02000 0 03012
03011 0 77200 0 00206
                         REW6 REW 6
                                                       SET UP CONSTANTS FOR INITIALIZATION
                               CLA 2MAN2D
03012 0 50000 0 01336
                                                            LACKING IN ORIGINS CARD
03013 0 77100 0 00022
                               ARS 18
                               STO 2MAND2
03014 0 60100 0 01335
                               ARS 1
03015 0 77100 0 00001
                               STO 1MAND1
03016 0 60100 0 01334
                               LXD COUNT 1
03017 -0 53400 1 03052
03020 -0 53400 2 03053
                               LXD COUNT+1,2
                               CLA COUNT+4
03021 0 50000 0 03056
                                                       SET UP RETURN FOR CODES WITH NO PREFACE
                               STO PREFAC
03022 0 60100 0 00020
                         RTNRD RCD
03023 0 76200 0 00321
03024 0 70000 0 00000
                               CPY COMMON
                                                       SAVE FIRST V AND R OF SET
                               STQ COMMON+2
03025 -0 60000 0 00002
03026 0 76300 0 00021
                               LLS 17
                               PAX 0,4
03027 0 73400 4 00000
                               ADD COMMON
03030 0 40000 0 00000
                                                       COPY CHECK SUM OR TITLE
                               CPY COMMON+1
03031 0 70000 0 00001
                                                       TEST FOR TITLE CARD
                               TXL CLERK 4
03032 -3 00000 4 03057
                               STA RECVR
03033 0 62100 0 03037
                               STA RECVR+1
03034 0 62100 0 03040
                               STA FILER
03035 0 62100 0 03106
03036 -0 50000 0 00000
                               CAL COMMON
                         RECVR CPY 0,4
03037 0 70000 4 00000
03040 0 36100 4 00000
                               ACL 0,4
                               TIX RECVR,4,1
03041 2 00001 4 03037
                               SLW COMMON
03042 0 60200 0 00000
                               CLA COMMON
03043 0 50000 0 00000
                               SUB COMMON+1
03044 0 40200 0 00001
03045 0 10000 0 03047
                               TZE CDRDR
                               HPR 384
                                                       600 ERROR STOP
03046 0 42000 0 00600
                         CDRDR RCD
03047 0 76200 0 00321
                               CPY COMMON
03050 0 70000 0 00000
03051 0 02000 0 03026
                               TRA RTNRD+3
03052 0 04001 0 00004
                         COUNT PZE 4,0,2049
03053 0 00331 0 00750
                               PZE SRORIG +0 +217
                                                       TABLE ENTRY BLANKS FOR DR. 2
03054 1 00000 0 00000
                               TXI
03055 0 00000 0 02450
                               PZE 1320
                                                       INTERLUDE RETURN INSTR.
03056 0 02000 4 00001
                               TRA 1,4
                         CLERK CLA COMMON+1
03057 0 50000 0 00001
03060 -0 12000 0 03132
                               TMI STMCR
03061 -0 10000 0 03064
                               TNZ INTLD
```

```
ORIGIN SUB-MCR
                               CLS COMMON+2
03062 0 50200 0 00002
03063 0 02000 0 03066
                               TRA INTLD+2
                                                       GO INITIALIZE SUB-ROUT
                         INTLD TSX PREFAC.4
03064 0 07400 4 00020
                               CLS COUNT+1
03065 0 50200 0 03053
                               ADD FILER
03066 0 40000 0 03106
                                                       NO. WORDS IN ROUTINE
03067 0 73400 4 00000
                               PAX 0.4
                               SXD TDR2,4
03070 -0 63400 4 03072
                               SXD TDR1.4
03071 -0 63400 4 03073
                         TDR2 TIX STDR2 1
03072 2 00000 1 03076
                         TDR1 TIX STDR1,2
03073 2 00000 2 03103
                                                       607 ERROR STOP (ROUTINE TOO BIG FOR DRUMS
                               HPR 391
03074 0 42000 0 00607
                                                       LD NEXT ROUTINE AND IGNORE ONE IN HSS
03075 0 02000 0 03021
                               TRA RTNRD-2
03076 0 76600 0 00302
                         STDR2 WDR 2
                               SXD COUNT+2:4
03077 -0 63400 4 03054
                               SLN 4
03100 0 76000 0 00144
                               LDA COUNT+2
03101 0 46000 0 03054
                               TRA FILER
03102 0 02000 0 03106
                         STDR1 WDR 1
03103 0 76600 0 00301
                               SXD COUNT+3,4
03104 -0 63400 4 03055
03105 0 46000 0 03055
                               LDA COUNT+3
                         FILER CPY 0,4
03106 0 70000 4 00000
                               TIX FILER,4,1
03107 2 00001 4 03106
                                                       CODE NUMBER
                               LXD COMMON+1,4
03110 -0 53400 4 00001
                               SLT 4
03111 -0 76000 0 00144
                               TRA FILER+8
03112 0 02000 0 03116
                               SLN 4
03113 0 76000 0 00144
03114 0 50000 0 03054
                               CLA COUNT+2
                               TRA FILER+9
03115 0 02000 0 03117
                               CLA COUNT+3
03116 0 50000 0 03055
                               STO ZTABLE,4
03117 0 60100 4 00747
                               ANA MASK
03120 -0 32000 0 03131
                               ARS 18
03121 0 77100 0 00022
                               ADD ZTABLE,4
03122 0 40000 4 00747
                               SLT 4
03123 -0 76000 0 00144
                               TRA UPDR1
03124 0 02000 0 03127
                               STO COUNT+2
03125 0 60100 0 03054
                               TRA RTNRD-2
03126 0 02000 0 03021
                         UPDR1 STO COUNT+3
03127 0 60100 0 03055
                               TRA. RTNRD-2
03130 0 02000 0 03021
03131 +077777000000
                         MASK OCT 077777000000
                         STMCR LXD MCRCT 4
03132 -0 53400 4 03153
                               WDR 1
03133 0 76600 0 00301
                               LDA MCRCT
03134 0 46000 0 03153
                               CPY ZTABLE+1+4
03135 0 70000 4 00750
                               TIX STMCR+3,4,1
03136 2 00001 4 03135
                                                     MOVE HEADER FROM DR 3 TO DR 2
                               RDR 3
03137 0 76200 0 00303
                               LXA HDRTR +3
03140 0 53400 3 03154
                         TRHDR CPY HDRTR+12,1
03141 0 70000 1 03170
                               TIX TRHDR,1,1
03142 2 00001 1 03141
03143 0 76600 0 00302
                               WDR 2
                               CPY HDRTR+12 +2
03144 0 70000 2 03170
03145 2 00001 2 03144
                               TIX TRHDR+3,2,1
                               CLA TDATA
03146 0 50000 0 03150
                               CAS MCRTRA
03147 0 34000 0 01357
                         TDATA TRA MCRORG
03150 0 02000 0 00020
```

03151 0 02000 0 00022 TRA MCRORG+2
03152 0 02000 0 00020 TRA MCRORG
03153 0 00730 0 00013 MCRCT HTR 11:0:472
03154 0 00000 0 00014 HDRTR P7E 12
00020 PREFAC SYN MCRORG
00747 ZTABLE SYN DISTRB+39
03000 END EXECLD

NO. WORDS IN MCR DPFADD DPFMPY DISTRB

```
7TABLE 00747,00747
                               ORG SRORIG
                00750
                00750 A
                               HED
                                                       GO LOAD PROB CONSTS H-REG V-REG
                        LDATA TSX CDRDR,4
00750 0 07400 4 01047
                                                      GO LOAD B IN W-REG OMEGA IN T-REG
00751 0 07400 4 01047
                               TSX CDRDR,4
                               MDR 4
00752 0 76600 0 00304
                               CLA WORIGN
00753 0 50000 0 01341
00754 0 40000 0 01335
                               ADD 2MAND2
00755 0 62100 0 00761
                               STA STORB+1
00756 0 62100 0 00777
                               STA STORE
                               LDA BDRORG
00757 0 46000 0 01324
00760 0 53400 7 01335
                         STORB LXA 2MAND2.7
                               CPY 0.2
00761 0 70000 2 00000
                               TIX STORB+1,2,1
00762 2 00001 2 00761
                                                       TEST FOR PLP
00763 -0 76000 0 00141
                               SLT 1
                               TRA MATRX
00764 0 02000 0 01001
00765 0 02000 0 01074
                               TRA TPLP1
                               WDR 4
00766 0 75600 0 00304
                               CLA TORIGN
00767 0 50000 0 01342
                               ADD 2MAND2
00770 -0 40000 0 01335
00771 0.62100 0.00772
                               STA OMEGA
00772 0 70000 4 00000
                         OMEGA CPY 0,4
00773 2 00001 4 00772
                               TIX OMEGA,4,1
                               TSX CDRDR,4
                                                       GO READ CHANGE VECTOR
00774 0 07400 4 01047
                               WOR 4
00775 0 76600 0 00304
                               LDA EDRORG
00776 0 46000 0 01326
00777 0 70000 1 00000
                         STORE CPY 0:1
                               TIX STORE ,1 ,1
01000 2 00001 1 00777
                         MATRX CLA COMMON+1
01001 0 50000 0 00001
                                                       TEST FOR NO MATRIX
                               TMI HEDER
01002 -0 12000 0 01016
                               TSX CDRDR • 4
01003 0 07400 4 01047
01004 0 50000 0 01010
                               CLA FILER
                                                       NO. WORDS IN MATRIX RECORD
01005 0 40200 0 01342
                               SUB TORIGN
                               PAX 0:1
01006 0 73400 1 00000
01007 0 76600 0 00225
                               MTB 5
                         FILER CPY 0,1
01010 0 70000 1 00000
                               TIX FILER,1,1
01011 2 00001 1 01010
01012 0 50000 0 00001
                               CLA COMMON+1
01013 0 12000 0 01003
                               TPL MATRX+2
                               WEE 5
01014 0 77000 0 00205
                               REW 5
01015 0 77200 0 00205
                                                        READ HEADER CARD
01016 0 07400 4 01047
                         HEDER TSX CDRDR.4
01017 0 50000 0 01342
                               CLA TORIGN
                               ADD TWELV
01020 0 40000 0 01024
01021 0 62100 0 01025
                               STA STOHD
                                                        STORE JOB HEADER IN PRNT ROUT
                               MDP 2
01022 0 74600 0 00302
01023 0 53400 2 01024
                               LXA TWELV,2
                         TWELV NOP 12
01024 0 76100 0 000/4
01025 0 70000 2 00000
                         STOHD CPY 0.2
01026 2 00001 2 01025
                               TIX STOHD,2,1
                                                       TEST FOR SCALE FACTOR CARD
                               SMT 6
01027 0 76000 0 00166
                               TRA SETMX
01030 0 02000 0 01034
01031 0 76200 0 00321
                               RCD
01032 0 70000 0 01355
                               CPY SCALHI
```

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```
CRY SCALLO
01033 0 70000 0 01356
                         SETMX CLA VORIGN
01034 0 50000 0 01340
                               ADD PRICEX
01035 0 40000 0 01346
                               STA SETMX+5
01036 0 62300 0 01041
                               ADD ONEADR
01037 0 40000 0 01301
01040 0 62100 0 01042
                               STA SETMX+6
01041 0 50000 0 00000
                               CLA
01042 0 56000 0 00000
                               LDQ
                               STO HIMAXV
01043 0 60100 0 01372
                               STO LOMAXV
01044 -0 60000 0 01373
                               LXD CBOXON,4
01045 -0 53400 4 01376
                               TRA 1,4
01046 0 02000 4 00001
                         CORDR RCD
01047 0 76200 0 00321
                               CPY COMMON
01050 0 70000 0 00000
01051 0 76300 0 00021
                               LLS 17
01052 0 73400 2 00000
                               PAX 0.2
01053 0 40000 0 00000
                               ADD COMMON
                               CPY COMMON+1
01054 0 70000 0 00001
                               TXH SETUP,2
01055 3 00000 2 01057
                               TRA 1.4
01056 0 02000 4 00001
                         SETUP STA RECVR
01057 0 62100 0 01063
                               STA RECVR+1
01060 0 62100 0 01064
01061 0 62100 0 01010
                               STA FILER
01062 -0 50000 0 00000
                               CAL COMMON
                         RECVR CPY 0.2
01063 0 70000 2 00000
                               ACL 0.2
01064 0 36100 2 00000
01065 2 00001 2 01063
                               TIX RECVR • 2 • 1
                               SLW COMMON
01066 0 60200 0 00000
                               CLA COMMON
01067 0 50000 0 00000
01070 0 40200 0 00001
                               SUB COMMON+1
01071 0 10000 0 01047
                               TZF CDRDP
                                                       610 ERROR STOP
                               HPR 392
01072 0 42000 0 00610
01073 0 02000 0 01047
                               TRA CDRDR
                                                       TEST FOR FIRST TIME IN PLP
                         TPLP1 SLN 1
01074 0 76000 0 00141
01075 0 50000 0 00001
                               CLA COMMON+I
01076 0 10000 0 00766
                               TZE STORB+6
                                                       SIGNAL TO MCR TO TRANSFORM E
                               SLN 2
01077 0 76000 0 00142
                                                       PASS OVER BLANK CARD
01100 0 76200 0 00321
                               RCD
01101 0 02000 0 00774
                               TRA STORE-3
                 00020
                               ORG MCRORG
                 00020 B
                               HED
00020 0 50000 0 01330
                        PREFO2 CLA HDRORG
                               SUB KDRORG
00021 0 40200 0 01327
00022 0 40000 0 01334
                               ADD 1MAND1
                                                       NO OF WORDS IN CONSTANTS AND H
00023 0 60100 0 00773
                               STO COUNT
00024 0 50000 0 01337
                               CLA HORIGN
00025 0 40000 0 01334
                               ADD 1MAND1
                               STA KHSUM
00026 0 62100 0 00753
                               STA K2DRM
00027 0 62100 0 00763
                               CLA VORIGN
00030 0 50000 0 01340
00031 0 40000 0 01335
                               ADD 2MAND2
                               STA VSUM
00032 0 62100 0 00756
                               STA K2DRM+4
00033 0 62100 0 00767
00034 0 02000 4 00001
                               TRA 1,4
```

ORG SRORIG

00750

```
00750 0 50000 0 01300
                         STSOL CLA MOUGHT
00751 0 60100 0 01377
                               STO CBOXTW
00752 0 53400 3 00773
                               LXA COUNT 3
00753 0 36100 1 00000
                         KHSUM ACL 0,1
09754 2 09001 1 00753
                               TIX KHSUM,1,1
00755 0 53400 5 01335
                               LXA 2MAND2.5
                         VSUM ACL 0.1
00756 0 36100 1 00000
00757 2 00001 1 00756
                               TIX VSUM.1.1
00760 0 60200 0 01377
                               SLW CBOXTM
00761 0 76600 0 00301
                               MDR 1
00762 0 46000 0 01327
                               LDA KDRORG
00763 0 70000 2 00000
                         K2DRM CPY 0.2
00764 2 00001 2 00763
                               TIX K2DRM • 2 • 1
00765 0 76600 0 00301
                               MDR 1
00766 9 46000 0 01331
                               LDA VDRORG
00767 0 70000 4 00000
                               CPY 0,4
00770 2 00001 4 00767
                               TIX K2DRM+4,4,1
00771 -0 53400 4 01376
                               LXD CBOXON 4
00772 0 02000 4 00001
                               TRA 1.4
00773 0 00000 0 00000
                        COUNT HTR
                 00020
                               ORG MCRORG
                 00020
                               HED
00020 0 50000 0 01340
                        PREFO3 CLA VORIGN
00021 0 40000 0 01335
                               ADD 2MAND2
00022 0 62100 0 01031
                               STA CHKV+1
00023 0 50000 0 01341
                               CLA WORIGN
00024 0 40000 0 01335
                               ADD 2MAND2
00025 0 62100 0 01036
                               STA CHKV+6
00026 0 02000 4 00001
                               TRA 1.4
                 00750
                               ORG SRORIG
00750 0 50000 0 01300
                         FORMC CLA NOUGHT
00751 0 60100 0 01375
                               STO STATUS
00752 0 50000 0 01044
                               CLA FLAGS
00753 0 60100 0 01006
                               STO ALTER
00754 -0 76000 0 00141
                               MSF 97
00755 0 02000 0 01024
                               TRA CASE1
00756 0 76000 0 00141
                               PSE 97
                                                       TWO VECTORS TO LOAD IN V AND W
00757 0 53400 4 01047
                               LXA FOUR +4
00760 0 50000 0 01043
                               CLA FLAGS-1
00761 0 62100 0 01005
                               STA ALTER-1
00762 0 50000 0 01340
                               CLA VORIGN
00763 2 00001 4 00765
                               TIX SETUP,4,1
                                                       LOAD V STORAGE
00764 0 50000 0 01341
                               CLA WORIGN
00765 0.40000 0.01335
                        SETUP ADD 2MAND2
00766 0 62100 0 01007
                               STA ALTER+1
00767 0 62100 0 01016
                               STA SETC+1
00770 0 40000 0 01301
                               ADD ONEADR
00771 0 62100 0 01010
                               STA ALTER+2
00772 0 62100 0 01020
                               STA SETC+3
00773 0 52400 1 01300
                               LXA NOUGHT 1
00774 0 53400 2 01335
                               LXA 2MAND2,2
00775 2 00001 4 01000
                               TIX ROWC-2,4,1
00776 0 50000 0 01360
                              CLA INDEXR
00777 0 02000 0 01002
                               TRA ROWC
```

CLA PRICEX

01000 0 50000 0 01346

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```
01001 0 76700 0 00022
                               ALS 18
                              STD RONC+3
01002 0 62200 0 01905
                               LOO NOUGHT
01003 0.56000 0.01300
                               TXI ROWC+3,1,2
01004 1 00002 1 01005
                                                       DECREMENT PRICEX OR INDEXR OR 2M+2
                               TXH 0,1
01005 3 00000 1 00000
                                                       TRANSFER FOR ONW VECTOR AFTER PRICEX ROW
                         ALTER NOP
01006 0 76100 0 00000
                               STQ 0.2
01007 -0 60000 2 00000
                               STQ 0.2
01010 -0 60000 2 00000
                               TIX ROWC+2,2,2
01011 2 00002 2 01004
                               TIX SETUP-1.4.1
01012 2 00001 4 00764
                               LXD CBOXON:4
01013 +0 53400 4 01376
                                                       EXIT
                               TRA 1,4
01014 0 02000 4 00001
01015 0 50000 0 01355
                         SETC CLA SCALHI
                               STO 0:2
01016 0 60100 2 00000
01017 0 50000 0 01356
                               CLA SCALLO
                               STO 0.2
01020 0 60100 2 00000
                               CLA 2MAND2
01021 0 50000 0 01335
                               TIX ROWC+1,2,2
01022 2 00002 2 01001
                               TRA SETC-3
01023 0 02000 0 01012
                                                       PREPARE TO LOAD ONE VECTOR IN W
                         CASE1 LXA TWOADR +4
01024 0 53400 4 01302
                                                       AND COMPARE V AFTER PRICE'S ROW IS REACHED
01025 0 50000 0 01045
                               CLA FLAGS+1
                               STA ALTER-1
01026 0 62100 0 01005
                               TRA SETUP-1
01027 0 02000 0 00764
                         CHKV CLS TOLMI
01030 0 50200 0 01050
01031 0 34000 2 00000
                               CAS 0,2
                               TRA CHKE
01032 | 0 02000 0 01051
                                                       V POSITIVE OR GREATER THAN 2 TO MINUS 33
01033 0 02000 0 01007
                               TRA ALTER+1
                               TRA ALTER+1
01034 0 02000 0 01007
                                                       V NEGATIVE -- UNITY TO VECTOR
                               CLA DPFXUN
01035 0 50000 0 01323
01036 0 60100 2 00000
                               STO 0.2
                               STO STATUS
01037 0 60100 0 01375
                               TRA ALTER+2
01040 0 02000 0 01010
                              CLA FLAGS+2
01041 0 50000 0 01046
                               STO ALTER
01042 0 60100 0 01006
01043 0 02000 0 01015
                               TRA SETC
                                                       CASE 1 FOR ROWS BEFORE PRICEX AND FOR TWO
                         FLAGS NOP
01044 0 76100 0 00000
                                                       FLAG FOR CASE 1 FOR ROWS AFTER PRICE X
                               HTR VCHK
01045 0 02000 0 01041
                               TRA CHKV
01046 0 02000 0 01030
                         FOUR DEC 4
01047 +0000000000004
                         TOLMI OCT 14000000000
01050 +140000000000
                         CHKE PXD 0,1
01051 -0 75400 1 00000
                               ARS 18
01052 0 77100 0 00022
01053 0 40200 0 01302
                               SUB TWOADR
                               SUB FEASYX
01054 0 40200 0 01347
                               TMI ALTER+1
 01055 -0 12000 0 01007
                                TRA CHKV+5
 01056 0 02000 0 01035
                               ORG MCRORG
                 00020
                                HED
                 00020 D
                                                       LOADING INTERLUDE FOR INITIALIZATION
                        PREFO4 CLA WORIGN
 00020 0 50000 0 01341
                                STA LOA
 00021 0 62100 0 01040
                                STA STORA+1
 00022 3 62100 0 01163
                                SUB ONFADR
 00023 0 40200 0 01301
                                STA HIA
 00024 0 62100 0 01037
                                STA STORA
 00025 0 62100 0 01162
                                CLA VORIGN
 00026 0 50000 0 01340
```

```
00027 0 62100 0 01142
                               STA LOB
                               STA STORS+1
00030 0 62100 0 01203
00031 0 40200 0 01301
                               SUB ONEADR
00032 0 62100 0 01141
                               STA HIB
                               STA STORB
00033 0 62100 0 01202
                                                       RETURN TO EXEC LDR
00034 0 02000 4 00001
                               TRA 1,4
                 00750
                               ORG SPORIG
00750 0 50000 0 01352
                         BTRAN CLA DR3LIM
                                                       SAME LOC AS SRORIG
00751 0 40000 0 01301
                               ADD ONEADR
00752 0 73400 5 00000
                               PAX 0.5
00753 -3 00001 4 01206
                               TXL REDTP • 4 • 1
                         REDRM RDR 3
00754 0 76200 0 00303
00755 0 40000 0 01342
                               ADD TORIGN
00756 0 62100 0 00757
                               STA REDRM+3
00757 0 70000 4 00000
                               CPY 0.4
00760 2 00001 4 00757
                               TIX REDRM+3,4,1
00761 -0 75400 1 00000
                         BEGRO PXD 0.1
00762 0 77100 0 00022
                               ARS 18
00763 0 40000 0 01342
                               ADD TORIGN
00764 0 62100 0 01022
                               STA LOETA
00765 0 62100 0 01144
                               STA LOB+2
00766 0 40200 0 01301
                               SUB ONEADR
00767 0 62100 0 01003
                               STA INPRD+1
00770 0 62100 0 00772
                               STA NUTRE
00771 0 53400 4 01300
                               LXA NOUGHT , 4
                                                       WORD COUNT OF PRECEDING TRNFMN IN DECR
00772 0 50000 4 00000
                         MUTRE CLA 0,4
00773 -0 72400 2 00000
                               PDX 0.2
                               TNX REDTP,2,3
00774 -2 00003 2 01206
00775 0 78000 0 00000
                               CLM
                                                       CLEAR SUMS
00776 0 60200 0 00001
                               SLW COMMON+1
00777 0 60200 0 00002
                               SLW COMMON+2
01000 0 60200 0 00003
                               SLW COMMON+3
01001 0 60200 0 00004
                               SLW COMMON+4
                         INPRD TXI INPRD+1,4,2
01002 1 00002 4 01003
                               LDQ 0,4
01003 0 56000 4 00000
                                                       GET HI PART ETA
01004 7 7KOOO 0 00000
                               CLM
01005 0 62100 0 01032
                               STA SHIFT
01006 0 62100 0 01033
                               STA SHIFT+1
01007 0 76300 0 00010
                               LLS 8
01010 0 76000 0 00003
                               550
01011 0 40200 0 01240
                               SUB 84ADR
01012 -0 12000 0 01136
                               TMI KFY2+2
01013 0 40200 0 01205
                               SUB 61ADR
01014 0 12000 0 01017
                               TPL INPRD+13
01015 0 62100 0 01033
                               STA SHIFT+1
01016 0 02000 0 01020
                               TRA INPRD+14
01017 0 62100 0 01032
                               STA SHIFT
01020 0 76000 0 00000
                               CLM
01021 -0 60000 0 00005
                               STO COMMON+5
                                                       GET LO PART ETA
01022 0 56000 4 00000
                         LOSTA LDQ 0.4
01023 0 76300 0 00010
                               LLS 8
                                                       INDEX FOR ELEM
01024 0 76700 0 00001
                               ALS 1
01025 0 76000 0 00006
                               COM
01026 0 73400 1 00000
                               PAX 0.1
01027 0 50000 0 00005
                               CLA COMMON+5
```

```
01030 0 77100 0 00010
                                ARS 8
 01031 0 14000 0 01032
                                TOV SHIFT
 01032 0 76300 0 00000
                          SHIFT LLS
                                                        FIX ETA
 01033 0 76500 0 00000
                                LRS
 01034 0 60100 0 00005
                                STO COMMON+5
                                                        HI ETA
 01035 -0 60000 0 00007
                                STO COMMON+7
                                                       LO ETA
 01036 0 14000 0 01236
                                TOV ETAOV
 01037 0 50000 1 00000
                         HIA
                                CLA 0.1
                                                        W/0-1
 01040 0 56000 1 00000
                               LDO 0.1
 01041 0 60100 0 00011
                                STO COMMON+9
 01042 -0 60000 0 00000
                                STO COMMON
01943 0 40000 0 00000
                                ADD COMMON
01044 0 10000 0 01121
                                TZE KEY1
01045 0 20000 0 00007
                                MPY COMMON+7
                                                       LO FIX BY LO ETA
01046 0 60100 0 00006
                                STO COMMON+6
01047 0 56000 0 00000
                                LDQ COMMON
01050 0 20000 0 00005
                                MPY COMMON+5
01051 0 60100 0 00000
                                STO COMMON
01052 0 50000 0 00006
                                CLA COMMON+6
01053 -0 60000 0 00006
                               STQ COMMON+6
01054 0 40000 0 00006
                                ADD COMMON+6
01055 0 76500 0 00043
                                LRS 35
01056 0 40000 0 00000
                                ADD COMMON
01057 0 76500 0 00005
                                LRS 5
01060 - 0 60100 0 00000
                                STO COMMON
01061 -0 60000 0 00006
                                STQ COMMON+6
01062 0 56000 0 00011
                               LDO COMMON+9
01063 0 20000 0 00007
                               MPY COMMON+7
                                                       HI FIX BY LO ETA
01064 0 76500 0 00005
                               LRS 5
01065 0 60100 0 00017
                               STO COMMON+15
01066 0 50000 0 00006
                               CLA COMMON+6
01067 -0 60000 0 00006
                               STO COMMON+6
01970 0 40000 0 00006
                               ADD COMMON+6
01071 0 76500 0 00043
                               LRS 35
01072 0 40000 0 00000
                               ADD COMMON
01073 0 40000 0 00017
                               ADD COMMON+15
01074 0 76500 0 00005
                               LRS 5
01075 0 60100 0 00000
                               STO COMMON
01076 -0 60000 0 00017
                               STO COMMON+15
01077 0 56000 0 00005
                               LDQ COMMON+5
01100 0 20000 0 00011
                               MPY COMMON+9
                                                       HIFIX BY HI ETA
01101 0 14000 0 01102
                              TOV CLOV+1
                                                       CLEAR OVERFLOW
01102 0 76300 0 00031
                               LLS 25
01103 0 14000 0 01231
                               TOV OVELO
01104 0 60100 0 00015
                               STO COMMON+13
01105 0 50000 0 00017
                               CLA COMMON+15
01106 -0 60000 0 00017
                               STO COMMON+15
01107 0 40000 0 00017
                               ADD COMMON+15
01110 0 40000 0 00002
                               ADD COMMON+2
01111 0 76500 0 00043
                               LRS 35
01112 0 14000 0 01113
                         OVOFF TOV OVOFF+1
01113 0 40000 0 00015
                               ADD COMMON+13
01114 0 40000 0 00000
                               ADD COMMON
01115 0 40000 0 00001
                               ADD COMMON+1
01116 0 60100 0 00001
                               STO COMMON+1
```

```
STO COMMON+2
01117 -0 60000 0 00002
                               TOV OVELO
01120 0 14000 0 01231
                                                       SWITCH IF ONLY ONE VECT
                              SLT 1
01121 -0 75000 0 00141
                         KEY1
01122 0 02000 0 01136
                               TRA KEY2+2
01123 0 76000 0 00141
                               SLN 1
                               CLA COMMON+1
01124 0 50000 0 00001
                               LDG COMMON+3
01125 0 56000 0 00003
                               STO COMMON+3
01126 0 60100 0 00003
                               STO COMMON+1
01127 -0 60000 0 00001
                               CLA COMMON+2
01130 0 50000 0 00002
                               LDQ COMMON+4
01131 0 56000 0 00004
01132 0 60100 0 00004
                               STO COMMON+4
                               STQ COMMON+2
01133 -0 60000 0 00002
                         KEY2 SLT 2
01134 -0 76000 0 00142
                               TRA KEY2+4
01135 0 02000 0 01140
                               TIX INPRD +2+2
01136 2 00002 2 01002
                               TXI LOB+2,4,3
01137 1 00003 4 01144
01140 0 76000 0 00142
                               SLN 2
                                                       V/0-1
                               CLA 0,1
01141 0 50000 1 00000
                         HIB
                                                       V/0
                               LDQ 0.1
01142 0 56000 1 00000
                               TRA LOA+1
01143 0 02000 0 01041
                                                       2R IN DECR
                               CLA 0,4
01144 0 50000 4 00000
01145 0 76000 0 00006
                               COM
01146 -0 73400 1 00000
                               PDX 0 • 1
                               CLA COMMON+1
01147 0 50000 0 00001
                               LRS 0
01150 0 76500 0 00000
                               TZE STORA-6
01151 0 10000 0 01154
                               CLA ONEADR
01152 0 50000 0 01301
                               LLS 0
01153 0 76300 0 00000
                               5TO COMMON+5
01154 0 60100 0 00005
01155 0 76700 0 00043
                               ALS 35
                               ADD COMMON+2
01156 0 40000 0 00002
                               LRS 35
01157 0 76500 0 00043
                               ADD COMMON+1
01160 0 40000 0 00001
                               SUB COMMON+5
01161 0 40200 0 00005
                                                        W/0-1
                         STORA STO 0.1
01162 0 60100 1 00000
                                                        W/0
                               STQ 0:1
01163 -0 60000 1 00000
                               SLT 1
01164 -0 76000 0 00141
                                TRA NUTRE
01165 0 02000 0 00772
                                SLN 1
01166 0 76000 0 00141
                                CLA COMMON+3
01167 0 50000 0 00003
                                LRS
01170 0 76500 0 00000
                                TZE STORA+9
01171 0 10000 0 01173
                                CLA ONEADR
01172 0 50000 0 01301
                               LLS
01173 0 76300 0 00000
                                STO COMMON+5
 01174 0 60100 0 00005
                                ALS 35
 01175 0 76700 0 00043
                                ADD COMMON+4
 01176 0 40000 0 00004
                                LRS 35
 01177 0 76500 0 00043
                                ADD COMMON+3
 01200 0 40000 0 00003
                                SUB COMMON+5
 01201 0 40200 0 00005
                                                        V/0-1
 01202 0 60100 1 00000
                          STORB STO 0.1
                                                        V/0
 01203 -0 60000 1 00000
                                STQ 0,1
 01204 0 02000 0 00772
                                TRA NUTRE
                          61ADR DEC 61
 01205 +0000000000075
```

```
REDTP CLA STAGES
01206 0 50000 0 01351
                               TZE EXIT
01207 0 10000 0 01234
                               LXA TPALTR:4
01210 0 53400 4 01354
                               TRA REDBI
01211 0 02000 0 01214
                               BST 4,4
01212 0 76400 4 00204
                                                       724 ERROR STOP
01213 0 42000 0 00724
                               HPR 468
01214 0 76200 4 00224
                         REDBI RTB 4,4
01215 0 53400 1 01300
                               LXA NOUGHT 1
01216 0 50000 0 01342
                               CLA TORIGN
                               STA REDBI+5
01217 0 62100 0 01221
01220 0 40000 0 01301
                               ADD ONEADR
                               CPY
01221 0 70000 0 00000
01222 1 00001 1 01217
                               TXI REDBI+3,1,1
01223 0 02000 0 01233
                               TRA EXIT-1
                               ARS 237
01224 0 77100 0 00355
                               ARS 237
01225 0 77100 0 00355
01226 -0 76000 0 00012
                               RTT
01227 0 02000 0 01212
                               TRA REDBI-2
01230 0 02000 0 00761
                               TRA BEGRO
                                                       240 ERROR STOP
                         OVELO HPR 160
01231 0 42000 0 00240
01232 0 02000 0 01231
                               TRA OVFLO
01233 0 77200 4 00204
                               REW 4,4
                         EXIT LXD CBOXON:4
01234 -0 53400 4 01376
01235 0 02000 4 00001
                               TRA 1,4
                                                       247 ERROR STOP
                         ETAOV HPR 167
01236 0 42000 0 00247
01237 0 02000 0 01236
                               TRA ETAOV
                         84ADR DEC 84
01240 +000000000124
                               ORG REDRM
                 00754
                               ADD SPAREF
                                                     MODIFY BIRAN FOR 8192 MEM.
00754 0 40000 0 01333
00755 0 02000 0 00764
                               TRA BEGRC+3
                 00020
                               ORG MCRORG
                 00020
                               HED
                        PREFOS CLA HORIGN
00020 0 50000 0 01337
00021 0 40000 0 01334
                               ADD 1MAND1
                               STA DTEST+2
00022 0 62100 0 01047
00023 0 02000 4 00001
                               TRA 1,4
                 00750
                               ORG SRORIG
00750 0 50000 0 01300
                         PRICE CLA NOUGHT
00751 0 60100 0 01361
                               STO INDEXS
                               STO LOSCAR
00752 0 60100 0 01367
00753 0 50000 0 01311
                               CLA INFINY
00754 0 60100 0 01370
                               STO HIBEST
00755 0 60100 0 01371
                               STO LOBEST
                                                       SET UP LOC R-TH BASIS HEAD FOR
00756 0 50000 0 01360
                               CLA INDEXR
                                                       DELTA CHECK IN PLP
00757 0 77100 0 00023
                               ARS 19
00760 0 40000 0 01337
                               ADD HORIGN
00761 0 62100 0 01043
                               STA DTEST-2
00762 0 07400 4 00766
                         READS TSX REDTP 4
00763 0 02000 0 01002
                               TRA CTREC
00764 0 76400 0 00205
                         BST5 BST 5
00765 0 42000 0 00725
                               HPR 469
                                                       ERROR STOP 725
00766 0 76200 0 00225
                         REDTP RTB 5
00767 0 50000 0 01342
                               CLA TORIGN
00770 0 62100 0 00772
                               STA REDTP+4
00771 0 40000 0 01301
                               ADD ONEADR
```

```
00772 0 70000 0 00000
                               CPY
00773 0 02000 0 00770
                               TRA REDTP+2
00774 0 02000 0 01144
                               TRA POSTP
00775 0 77100 0 00355
                               ARS 237
00776 0 77100 0 00355
                               ARS 237
00777 -0 76000 0 00012
                               PTT
01000 0 02000 0 00764
                               TRA BST5
01001 0 02000 4 00001
                               TRA 1.4
01002 0 50000 0 01367
                         CTREC CLA LOSCAR
01003 0 40000 0 01301
                               ADD ONEADR
01004 0 60100 0 01367
                               STO LOSCAR
01005 0 50000 0 01342
                              CLA TORIGN
01006 0 76000 0 00006
                              COM
01007 0 73400 1 00000
                               PAX 0.1
01010 0 50000 1 77777
                               CLA 32767,1
01011 0 10000 0 00762
                               TZE READ5
                                                     END OF RECORD
01012 0 12000 0 01021
                               TPL NEXTJ+1
                                                      TEST FOR PARTITIONS
01013 0 50000 0 01331
                               CLA VDRORG
01014 0 12000 0 01020
                               TPL NEXTJ
01015 0 50000 0 01370
                               CLA HIBEST
01016 0 10000 0 01020
                               TZE NEXTJ
01017 -0 12000 0 01147
                               TMI POSTP+3
01020 2 00002 1 01010
                        NEXTU TIX J.1.2
01021 0 60100 0 00000
                               STO COMMON
01022 0 50000 1 00000
                               CLA 0.1
                                                       LOC A-J
                               STO BORIGN
01023 0 60100 0 01365
01024 0 76000 0 00006
                               COM
01025 0 73400 2 00000
                               PAX 0.2
01026 0 50000 0 01341
                               CLA WORIGN
01027 0 07400 4 01163
                               TSX CINPR,4
01030 0 76300 0 00006
                               LLS 6
01031 0 14000 0 01033
                               TOV NUDEL
01032 0 10000 0 01020
                               TZE NEXTU
                                                       DELTA TOO SMALL
01033 -0 76000 0 00142
                        NUDEL SLT 2
                                                       TEST FOR DELTA CHECK
01034 0 02000 0 01037
                               TRA NUDEL+4
01035 0 76000 0 00142
                                                       SKIP DELTA CHECK
                               SLN 2
01036 0 02000 0 01053
                               TRA SWICH
01037 -0 76000 0 00141
                               SLT 1
                                                       TEST FOR PLP
01040 0 02000 0 01045
                               TRA DTEST
01041 0 76000 0 00141
                               SLN 1
01042 0 50000 0 00000
                               CLA COMMON
                                                       CHECK FOR RTH BASIS HEADING IN PLP
01043 0 40200 0 00000
                               SUB
01044 0 10000 0 01053
                               TZE SWTCH
01045 0 53400 4 01334
                        DTEST LXA 1MAND1,4
01046 0 50000 0 00000
                              .CLA COMMON
01047 0 34000 4 00000
                               CAS 0,4
                                                       H/0 + M+1
01050 0 02000 0 01052
                               TRA DTEST+5
01051 0 02000 0 01161
                               TRA DERR
01052 2 00001 4 01047
                               TIX DTEST+2,4,1
01053 0 50000 0 00006
                         SWICH CLA COMMON+6
01054 0 12000 0 01020
                              TPL NEXTJ
                                                       POSITIVE DELTA NO CANDIDATE
01055 0 56000 0 00007
                               LDQ COMMON+7
01056 -0 76000 0 00141
                               SLT 1
                                                       TEST FOR PLP
01057 0 02000 0 01121
                              TRA COMPR
01060 0 76000 0 00141
                         NORMD SLN 1
```

```
LRS 8
01061 0 76500 0 00010
                               TNZ NORMD+7
01062 -0 10000 0 01067
                               LLS 27
01063 0 76300 0 00033
                               ORA 27CHAR
01064 -0 50100 0 01312
                               FAD 27CHAR
01065 0 30000 0 01312
01066 0 02000 0 01071
                               TRA NORMD+9
                               ORA 54CHAR
01067 -0 50100 0 01313
                               FAD 54CHAR
01070 0 30000 0 01313
01071 0 77100 0 00011
                               ARS 9
                               PDX 0.4
01072 -0 73400 4 00000
01073 0 77100 0 00022
                               ARS 18
                               STA RSHFT
01074 0 62100 0 01114
01075 0 50000 0 00006
                               CLA COMMON+6
01076 0 56000 0.00007
                               LDQ COMMON+7
01077 0 76300 4 00066
                               LL5 54,4
                         DENOM STO HISCAR
01100 0 60100 0 01366
                               CLA VORIGN
01101 0 50000 0 01340
01102 0 07400 4 01163
                               TSX CINPR,4
01103 0 76500 0 00001
                               LRS 1
                               DVH HISCAR
01104 0 22000 0 01366
01105 -0 60000 0 00003
                                                       H1 PH1
                               STQ COMMON+3
                               LDQ NOUGHT
01106 0 56000 0 01300
                               DVH HISCAR
01107 0 22000 0 01366
                               LXA RSHFT 4
01110 0 53400 4 01114
01111 0 50200 0 00003
                               CLS COMMON+3
                                                       NO TRANSFER MEANS RIGHT SHIFT
                               TXL RSHFT,4,30
01112 -3 00036 4 01114
                               LXD RSHFT-2,4
01113 -0 53400 4 01112
                         RSHFT LRS 0,4
01114 0 76500 4 00000
01115 0 76300 4 00036
                               LL5 30.4
01116 0 14000 0 01142
                               TOV OVPHI
01117 0 60100 0 00006
                               STO COMMON+6
                               STQ COMMON+7
01120 -0 60000 0 00007
                         COMPR CAS HIBEST
01121 0 34000 0 01370
                                                       OLD DELTA BETTER
                               TRA NEXTJ
01122 0 02000 0 01020
01123 9 02000 0 01135
                               TRA HITIE
01124 0 60100 0 01370
                               STO HIBEST
                               STQ LOBEST
01125 -0 60000 0 01371
01126 0 50000 0 00000
                               CLA COMMON
                                                       KEEP J FOR S
                               STO INDEXS
01127 0 60100 0 01361
01130 0 50000 0 01365
                               CLA BORIGN
01131 0 60100 0 01364
                               STO AORIGN
                                                       KEEP LOCATION
                               CLA LOSCAR
01132 0 50000 0 01367
                                                       KEEP RECORD NUMBER
01133 0 60100 0 00001
                               STO COMMON+1
01134 2 00002 1 01010
                               TIX J,1,2
01135 0 50000 0 00007
                         HITIE CLA COMMON+7
01136 0 34000 0 01371
                               CAS LOBEST
                                                       OLD DELTA BETTER
01137 0 02000 0 01020
                               TRA NEXTJ
                                                       DELTAS EQUAL
01140 0 02000 0 01020
                               TRA NEXTJ
                                                       HIGH PARTS EQUAL NEW LOW DELTA BETTER
01141 0 02000 0 01125
                               TRA COMPR+4
                                                       ERROR STOP 251
                         OVPHI HPR 169
01142 0 42000 0 00251
                               HTR OVPHI
01143 0 00000 0 01142
01144 0 50000 0 01361
                         POSTP CLA INDEXS
01145 0 10000 0 01156
                               TZE EXIT
01146 0 76400 0 00205
                               BST 5
01147 0 50000 0 01367
                               CLA LOSCAR
```

```
SUB COMMON+1
01150 0 40200 0 00001
                                                       PROPER DIVISION IN MEMORY
                               TZE EXIT
01151 0 10000 0 01156
                               BST 5
01152 0 76400 0 00205
                               SUB ONEADR
01153 0 40200 0 01301
                               TPL POSTP+6
01154 0 12000 0 01152
                                                     GO READ IN PROPER DIVISION
                               TSX REDTP:4
01155 0 07400 4 00766
                        .EXIT LXD CBOXON+4
01156 -0 53400 4 01376
                               REW 5
01157 0 77200 0 00205
                               TRA 1.4
01160 0 02000 4 00001
                                                       ERROR STOP 257
                               HPR 175
                         DERR
01161 0 42000 0 00257
                               TRA DERR
01162 0 02000 0 01161
                         CINPR SXD COMMON+3+2
01163 -0 69400 2 00003
                               SXD CBOXTW+4
01164 -0 63400 4 01377
                               ADD 2MAND2
01165 0 40000 0 01335
                               STA ELBET
01166 0 62100 0 01176
                               ADD ONEADR
01167 0 40000 0 01301
                               STA ELBET+1
01170 0 62100 0 01177
                               CLA NOUGHT
01171 0 50000 0 01300
                               STO COMMON+6
01172 0 60100 0 00006
                               STO COMMON+7
01173 0 60100 0 00007
                               CLA 32767.2
01174 0 50000 2 77777
                               PDX 0.4
01175 -0 73400 4 00000
                          ELBET CLA 0,4
01176 0 50000 4 00000
                                LDQ 0,4
01177 0 56000 4 00000
                                STO COMMON+8
01200 0 60100 0 00010
                                STO COMMON+9
01201 -0 60000 0 00011
                                ADD COMMON+9
01202 0 40000 0 00011
                                                        SKIP ZERO MULTIPLICATION
                                TZE NEXTI-2
01203 0 10000 0 01232
                                MPY 0.2
 01204 0 20000 2 00000
                                LRS 22
 01205 0 76500 0 00026
                                                        LO PRODUCT
                                STO COMMON+9
 01206 0 60100 0 00011
                                STQ COMMON+10
 01207 -0 60000 0 00012
                                                        H1 PRODUCT
                                LDQ COMMON+8
 01210 0 56000 0 00010
                                MPY 0:2
 01211 0 20000 2 00000
                                TOV CLROV
 01212 0 14000 0 01213
                          CLROV LLS 13
 01213 0 76300 0 00015
                                ADD COMMON+9
 01214 0 40000 0 00011
                                                        SUM HI PARTS
                                STO COMMON+8
 01215 0 60100 0 00010
                                TOV OVFLO
 01216 0 14000 0 01256
                                CLA COMMON+10
 01217 0 50000 0 00012
                                STQ COMMON+10
 01220 -0 60000 0 00012
                                                        SUM LO PARTS
                                ADD COMMON+10
 01221 0 40000 0 00012
                                ADD COMMON+7
 01222 0 40000 0 00007
                                LRS 35
 01223 0 76500 0 00043
                                TOV MEXTI-7
 01224 0 14000 0 01225
                                ADD COMMON+8
 01225 0 40000 0 00010
                                ADD COMMON+6
 01226 0 40000 0 00006
                                TOV OVFLO
 01227 0 14000 0 01256
                                                        NEW SUM
                                STO COMMON+6
 01230 0 60100 0 00006
                                STQ COMMON+7
 01231 -0 60000 0 00007
                                CLA 32767,2
 01232 0 50000 2 77777
                                TMI NEXTI+1
 01233 -0 12000 0 01235
                          NEXTI TIX I +2 +2
 01234 2 00002 2 01174
                                CLA COMMON+6
 01235 0 50000 0 00006
                                TZE OVFLO-7
 01236 0 10000 0 01247
```

```
01237 0 76000 0 00000
                               CLM
01240 -0 50100 0 01301
                               ORA ONEADR
                               STO COMMON+8
01241 0 60100 0 00010
01242 0 76700 0 00043
                               ALS 35
                               ADD COMMON+7
01243 0 40000 0 00007
01244 0 76500 0 00043
                               LRS 35
                               SUB COMMON+8
01245 0 40200 0 00010
                               ADD COMMON+6
01246 0 40000 0 00006
01247 0 76300 0 00000
                               LLS 0
01250 0 60100 0 00006
                               STO COMMON+6
01251 -0 60000 0 00007
                               STQ COMMON+7
                               LXD COMMON+3.2
01252 -0 53400 2 00003
                               LXD CBOXTW+4
01253 -0 53400 4 01377
                               TOV OVFLO-1
01254 0 14000 0 01255
01255 0 02000 4 00001
                               TRA 1.4
                         OVFLO HPR 168
01256 0 42000 0 00250
                                                       ERROR STOP 250
01257 0 02000 0 01256
                               TRA OVFLO
                               ORG SRORIG
                 00750
                               HED
                 00750
                         LDFLV LXA 2MAND2,2
00750 0 53400 2 01335
00751 -0 50000 0 01365
                               CAL BORIGN
                               ADD 2MAND2
00752 0 40000 0 01335
                               STA SUBOR+4
00753 0 62100 0 00765
                                                       TEST + OR - LOADING
                               PBT
00754 -0 76000 0 00001
                               TRA SUBOR+1
00755 0 02000 0 00762
                               CLA SUBOR
00756 0 50000 0 00761
00757 0 02000 0 00763
                               TRA SUBOR+2
                                                       CHAR OF SP FIXED PT NO
                         ADDOR CLA 141,1
00760 0 50000 1 00215
                                                       CHAR FOR LO-PART
                         SUBOR CLS 133.1
00761 0 50200 1 00205
                               CLA ADDOR
00762 0 50000 0 00760
                               STO AELEM
00763 0 60100 0 01004
00764 0 50000 0 01300
                               CLA NOUGHT
                                                       CLEAR B
                               5TO 0.2
00765 0 60100 2 00000
                               TIX SUBOR+4,2,1
00766 2 00001 2 00765
                                                       INITIALIZE B ADDRESES
                               CAL BORIGN
00767 -0 50000 0 01365
                               STA BELEM+1
00770 0 62100 0 01022
                               SUB ONEADR
00771 0 40200 0 01301
                               STA BELEM
00772 0 62100 0 01021
                                                       INITIALIZE A LOCATIONS
                               CLA AORIGN
00773 0 50000 0 01364
                               STA AELEM
00774 0 62100 0 01004
                               SUB ONFADR
00775 0 40200 0 01301
00776 0 62100 0 01000
                               STA ELIND
                               LXA INFINY 1
00777 0 53400 1 01311
                                                       INDEX OF A ELEM
                         FLIND CLA 0.1
01000 0 50000 1 00000
                               STO COMMON
01001 0 60100 0 00000
01002 0 76000 0 00006
                               COM
                               PAX 0,2
01003 0 73400 2 00000
01004 0 50000 0 00000
                         AELEM CLA
01005 0 76500 0 00033
                               LRS 27
                               TNZ AELEM+5
01006 -0 10000 0 01011
                               CLA DUMMY
01007 0 50000 0 01030
                               TRA BELEM-4
01010 0 02000 0 01015
01011 0 76500 0 00010
                               LRS 8
01012 0 50000 0 00760
                               CLA ADDOR
01013 0 76300 0 00010
                               LLS 8
```

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ALS 19
01014 0 76700 0 00023
01015 0 60100 0 00001
                               STO COMMON+1
                               CLA SUBOR
01016 0 50000 0 00761
01017 0 76300 0 00033
                               LLS 27
01020 0 30000 0 00001
                               FAD COMMON+1
01021 0 60100 2 00000
                         BELEM STO 0.2
01022 -0 60000 2 00000
                               STQ 0,2
01023 0 50000 0 00000
                               CLA COMMON
01024 -0 12000 0 01026
                               TMI EXIT
01025 2 00002 1 01000
                               TIX ELIND +1 +2
                         EXIT LXD CBOXON,4
01026 -0 53400 4 01376
01027 0 02000 4 00001
                               TRA 1,4
                         DUMMY OCT 205000000000
01030 +205000000000
                 00750
                               ORG SRORIG
                 00750
                               HED
00750 0 50000 0 01365
                         FTRAN CLA BORIGN
00751 0 40000 0 01335
                               ADD 2MAND2
                               STA PIVOT+4
00752 0 62100 0 01032
00753 0 62100 0 01040
                               STA HIORD-6
                               STA FLADD
00754 0 62100 0 01070
                               STA RESLT
00755 0 62100 0 01074
00756 0 62100 0 01123
                               STA FINAL+1
00757 0 62100 0 01151
                               STA EXIT-3
00760 0 40000 0 01301
                               ADD ONEADR
00761 0 62100 0 01035
                               STA PIVOT+7
                               STA HIORD-5
00762 0 62100 0 01041
                               STA FLADD+1
00763 0 62100 0 01071
00764 0 62100 0 01075
                               STA RESLT+1
00765 0 62100 0 01124
                               STA FINAL+2
00766 0 62100 0 01152
                               STA EXIT-2
00767 0 50000 0 01342
                               CLA TORIGN
00770 0 40200 0 01301
                               SUB ONEADR
00771 0 62100 0 01003
                               STA REDTP+2
                                                       TEST STAGE INDEX
00772 0 50000 0 01351
                               CLA STAGES
00773 0 10000 0 01103
                               TZE REDRM
                                                       INITIALIZE ERROR PROCEDURE FOR
00774 0 50000 0 01016
                               CLA BEGRC+2
00775 0 62100 0 01015
                               STA BEGRC+1
                                                            READING TAPE AND SET SWITCH
                               TRA REDTP
00776 0 02000 0 01001
00777 0 76400 0 00202
                         BST2 BST 2
                                                       730 TAPE CHECK HALT
01000 0 42000 0 00730
                               HPR 472
                                                       TAPE READING
01001 0 76200 0 00222
                         REDTP RTB 2
01002 -0 53400 1 01311
                               LXD INFINY 1
                                                            COPY LOOP
01003 0 70000 1 00000
                               CPY 0,1
                                                       T/0-1
01004 2 00001 1 01003
                               TIX REDTP+2,1,1
01005 0 02000 0 01103
                               TRA REDRM
01006 0 77100 0 00355
                               ARS 237
01007 0 77100 0 00355
                               ARS 237
01010 -0 76000 0 00012
                               RTT
01011 0 02000 0 00777
                               TRA BST2
01012 0 50000 0 01342
                               CLA TORIGN
01013 0 62100 0 01014
                               STA BEGRO
                         BEGRC LXA 0:1
                                                       LOC WORD COUNT OF TRANSFMIN
01014 0 53400 1 00000
01015 -2 00001 1 00000
                                                       SWITCH
                               TNX 0 +1 +1
                                                     ADDRESS FOR SWITCH TO TAPE READ
01016 -0 75400 1 01001
                               PXD REDTP:1
01017 0 77100 0 00022
                               ARS 18
```

```
ADD BEGRC
01020 0 40000 0 01014
                                                       SET UP REL ADDR FOR R-TH ELEMENT
                               STA HIORD
01021 0 62100 0 01046
                               ADD ONEADR
01022 0 40000 0 01301
                               STA LOORD
01023 0 62100 0 01053
                               STA BEGRC
01024 0 62100 0 01014
                               STA PIVOT
01025 0 62100 0 01026
                                                       2R IN DECR
                         PIVOT CLA 0:1
01026 0 50000 1 00000
                               ANA MASKDE
01027 -0 32000 0 01322
                               SUB 2MAN2D
01030 0 40200 0 01336
01031 -0 73400 2 00000
                               PDX 0+2
                                                       A/0+2M+2
01032 0 50000 2 00000
                               CLA 0.2
                               TZE BEGRC
01033 0 10000 0 01014
                               STO HISCAR
01034 0 60100 0 01366
                                                       A/0+2M+3
                               CAL 0,2
01035 -0 50000 2 00000
                               SLW LOSCAR
01036 0 60200 0 01367
                               CLM
01037 0 76900 0 00000
                                                       A/0+2M+2
01040 0 60200 2 00000
                               SLW 0.2
                                                       A/0+2M+3
                               SLW 0.2
01041 0 60200 2 00000
                                                       STEP OVER J WORD IN TRNFMN HEADING
                               TIX HIORD-3,1,1
01042 2 00001 1 01043
                                                       CLEAR OVFLO
                               TQO HIORD-2
01043 0 16100 0 01044
                                                       TOGGLES
                               TOV HIORD-1
01044 0 14000 0 01045
                               TNX BEGRC . 1 . 2
01045 -2 00002 1 01014
                         HIORD CLA 0.1
01046 0 50000 1 00000
                               STO COMMON
01047 0 60100 0 00000
                               ANA MASKCH
01050 -0 32000 0 01316
                               SUB 27CHAR
01051 0 40200 0 01312
                               STO COMMON+1
01052 0 60100 0 00001
                         LOORD CLA 0.1
01053 0 50000 1 00000
                               STO COMMON+2
01054 0 60100 0 00002
                                ANA MASKCH
01055 -0 32000 0 01316
                                ARS 8
01056 0 77100 0 00010
                                SUB 2MAN2D
01057 0 40200 0 01336
                                PDX 0.2
01060 -0 73400 2 00000
                                CAL COMMON+2
01061 -0 50000 0 00002
                                ANA MASKER
01062 -0 32000 0 01317
                                                        INSERT LO CHAR
                                ORS COMMON+1
01063 -0 60200 0 00001
                                TSX DPFMUL+2+4
01064 0 07400 4 00640
                                TRA OVMPY
01065 0 02000 0 01077
                                STO COMMON
01066 0 60100 0 00000
                                STQ COMMON+1
01067 -0 60000 0 00001
                                                        A/0+2M+2
                          FLADD CLA 0.2
 01070 0 50000 2 00000
                                                        A/0+2M+3
 01071 0 56000 2 00000
                                LDQ 0.2
                                TSX DPFADD:4
 01072 0 07400 4 00607
                                TRA OVADD
 01073 0 02000 0 01101
                                                        A/0+2M+2
                          RESLT STO 0.2
 01074 0 60100 2 00000
                                                        A/0+2M+3
 01075 -0 60000 2 00000
                                STQ 0.2
                                                        GO BACK FOR NEXT ELEM
                                TRA HIORD-1
 01076 0 02000 0 01045
                          OVMPY HPR 208
 01077 0 42000 0 00320
                                TRA OVMPY
 01100 0 02000 0 01077
                          OVADD HPR 200
 01101 0 42000 0 00310

    TRA OVADD

 01102 0 02000 0 01101
                          REDRM CLA REDRM+5
 01103 0 50000 0 01110
                                                        SET SWITCH
                                STA BEGRC+1
 01104 0 62100 0 01015
                                CLA DR3LIM
 01105 0 50000 0 01352
                                ADD ONEADR
 01106 0 40000 0 01301
```

```
01107 0 73400 1 00000
                              PAX 0.1
                              TXL FINAL,1,1
                                                      CHECK EMPTY DRUM
01110 -3 00001 1 01122
                              RDR 3
01111 0 76200 0 00303
ADD TORIGN
                              STA CPYDR
01113 0 62100 0 01115
01114 0 62100 0 01120
                              STA CLEAR
01115 0 70000 1 00000
                       · CPYDR CPY 0.1
01116 2 00001 1 01115
                              TIX CPYDR,1,1
01117 0 50000 0 01300
                              CLA NOUGHT
01120 0 62100 1 00000
                        CLEAR STA 0,1
01121 0 02000 0 01012
                              TRA BEGRC-2
                        FINAL LXA 2MAND2.2
01122 0 53400 2 01335
01123 0 50000 2 00000
                              CLA 0.2
                                                      A/0+2M+2
                                                      A/0+2M+3
01124 0 56000 2 00000
                              LDQ 0,2
01125 0 60100 0 00000
                              STO COMMON
01126 0 16200 0 01132
                        SYNAG TOP SYNAG+4
01127 -0 12000 0 01151
                              TMI EXIT-3
                                                      REMEMBER SIGN OF NUMBER
01130 0 76000 0 00144
                              SLN 4
                              TRA SYNAG+6
01131 0 02000 0 01134
01132 0 12000 0 01151
                              TPL EXIT-3
01133 0 76500 0 00000
                              LRS
01134 -0 32000 0 01316
                              ANA MASKCH
01135 0 40200 0 01332
                              SUB BORROW
                              STO COMMON+I
01136 -0 60000 0 00001
                              UFA COMMON+1
01137 -0 30000 0 00001
01140 0 16100 0 01141
                              TQO SYNAG+11
01141 0 60100 0 00001
                              STO COMMON+1
01142 0 50200 0 01301
                              CLS ONEADR
                              ADM COMMON
01143 0 40100 0 00000
01144 0 30000 0 00001
                              FAD COMMON+1
01145 -0 76000 0 00144
                              SLT 4
01146 -0 76000 0 00003
                              SSM
01147 0 76500 0 00000
                              LRS 0
01150 0 16100 0 01156
                              TQO EXIT+2
01151 0 60100 2 00000
                                                      A/0+2M+2
                               STO 0,2
                              STQ 0.2
                                                      A/0+2M+3
01152 -0 60000 2 00000
01153 2 00002 2 01123
                              TIX FINAL+1.2.2
                              LXD CBOXON:4
01154 -0 53400 4 01376
                        EXIT
01155 0 02000 4 00001
                              TRA 1,4
01156 0 50000 0 01300
                              CLA NOUGHT
01157 0 56000 0 01300
                              LDQ NOUGHT
01160 0 02000 0 01151
                              TRA EXIT-3
                              ORG REDRM+6
                 01111
01111 0 40200 0 01301
                              SUB ONEADR
                                                     MODIFY FOR 8192 MEMORY
                              ADD SPAREF
01112 0 40000 0 01333
01113 0 62100 0 01115
                              STA ERASE
01114 0 50000 0 01300
                              CLA NOUGHT
01115 0 62100 0 00000
                        ERASE STA
01116 0 5n000 0 01333
                              CLA SPAREF
01117 0 02000 0 01013
                              TRA BEGRC-1
                 00020
                              ORG MCRORG
                 00020 H
                              HED
00020 0 50000 0 01337 PREFOR CLA HORIGN
00021 0 40000 0 01334
                              ADD 1MAND1
00022 0 62100 0 01101
                              STA BASIS+1
```

```
00023 0 50000 0 01341
                                CLA WORIGN
                                                        INITIALIZE U VALUES
 00024 0 40000 0 01335
                                ADD 2MAND2
 00025 0 62100 0 00765
                                STA START
 00026 0 62100 0 01105
                                STA BASIS+5
 00027 0 40000 0 01301
                                ADD ONEADR
 00030 0 62100 0 00772
                                STA START+5
 00031 0 62100 0 01106
                                STA BASIS+6
 00032 0 50000 0 01340
                                CLA VORIGN
                                                        INITIALIZE V VALUES
 00033 0 40000 0 01335
                                ADD 2MAND2
 00034 0 62100 0 00774
                                STA START+7
 00035 0 40000 0 01301
                                ADD ONEADR
00036 0 62100 0 01015
                               STA SETUP
00037 0 02000 4 00001
                                TRA 1.4
                 00750
                                ORG SRORIG
00750 0 50000 0 01311
                         CHUZR CLA INFINY
00751 0 60100 0 01370
                                STO HIBEST
00752 0 50000 0 01300
                                CLA NOUGHT
00753 0 60100 0 01360
                               STO INDEXR
00754 0 16100 0 00755
                               TQO CHUZR+5
00755 0 50000 0 01364
                               CLA AORIGN
00756 0 53400 1 01335
                               LXA 2MAND2 1
00757 0 53400 2 01347
                               LXA FEASYX,2
00760 -0 63400 2 00761
                               SXD FIX.2
00761 2 00000 1 00762
                               TIX FIX+1.1
                                                       SET INDEX FOR FIRST ELIGIBLE ROW
00762 0 10000 0 01072
                               TZE INVER
00763 0 50000 0 01117
                               CLA PRIME
                                                       SET SWITCH
00764 0 60100 0 01055
                               STO NEXTR+1
00765 0 50000 1 00000
                         START CLA 0.1
                                                       HIGH U
00766 0 60100 0 01366
                               STO HISCAR
00767 0 76000 0 00003
                               SSP
00770 0 40200 0 01121
                               SUB MINIU
00771 -0 12000 0 01054
                               TMI NEXTR
                                                       U LESS THAN 2 TO MINUS 17
00772 0 50000 1 00000
                               CLA 0.1
                                                       LOW U
00773 0 60100 0 01367
                               STO LOSCAR
00774 0 50000 1 00000
                               CLA 0.1
                                                       HIGH V
00775 0 60100 0 00000
                               STO COMMON
00776 0 10000 0 01065
                               TZE ZEROV
00777 0 12000 0 01002
                               TPL RATIO
01000 0 40000 0 01123
                               ADD TOLMI
                                                       NEGATIVE V LESS THAN 2 TO MINUS 33
01001 0 12000 0 01065
                               TPL ZEROV
                                                       TREAT AS ZERO
01002 0 50000 0 01366
                         RATIO CLA HISCAR
                                                       U
01003 0 56000 0 00000
                               LDQ COMMON
                                                       ٧
01004 -0 12000 0 01007
                               TMI CHKOV-1
01005 0 16200 0 01010
                               TQP CHKOV
01006 0 02000 0 01054
                               TRA NEXTR
                                                       NEGATIVE V AND POSITIVE U NOT ELIGIBLE
01007 0 16200 0 01054
                               TOP NEXTR
                                                       POSITIVE V AND NEGATIVE U NOT ELIGIBLE
01010 0 76000 0 00003
                         CHKOV SSP
01011 0 76500 0 00000
                               LRS
01012 0 40000 0 01122
                               ADD POWER
01013 0 04000 0 01015
                               TLQ SETUP
01014 0 02000 0 01054
                               TRA NEXTR
                                                       RATIO WILL OVERFLOW
01015 0 50000 1 00000
                         SETUP CLA 0.1
                                                       LOW V
01016 0 60100 0 00001
                               STO COMMON+1
01017 0 50000 0 00000
                               CLA COMMON
                                                       HIGH V
01020 0 24000 0 01366
                               FDH HISCAR
                                                       HIGH U
```

```
TQO ZEROV
01021 0 16100 0 01065
01022 -0 60000 0 00000
                               STO COMMON
01023 0 30000 0 00001
                               FAD COMMON+1
                                                       LOW V
01024 0 16100 0 01025
                               TQO SETUP+8
01025 0 24000 0 01366
                               FDH HISCAR
01026 -0 60000 0 00001
                               STQ COMMON+1
01027 0 14000 0 01030
                               TOV SETUP+11
                                                       CLEAR ACCUMULATOR TOGGLE
01030 0 16100 0 01065
                               TQO ZEROV
                                                       QUOTIENT UNDERFLOW
01031 0 50200 0 01367
                               CLS LOSCAR
                                                       LOW U
                                                       HIGH U
01032 0 24000 0 01366
                               FDH HISCAR
01033 0 26000 0 00000
                               FMP COMMON
01034 -0 30000 0 00001
                               UFA COMMON+1
01035 0 16100 0 01036
                                                       CLEAR MQ OVERFLOW TOGGLE
                               TQO TOV
01036 0 14000 0 01065
                               TOV ZEROV
01037 0 30000 0 00000
                               FAD COMMON
01040 0 16100 0 01065
                               TQO ZEROV
01041 0 60100 0 00000
                               STO COMMON
                                                       HIGH QUOTIENT IN ACCUMULATOR LOW IN MQ
01042 0 50000 0 01370
                               CLA HIBEST
01043 -0 12000 0 01054
                                                       ONLY ZERO RATIO ELIGIBLE
                               TMI NEXTR
01044 0 50000 0 00000
                               CLA COMMON
01045 -0 60000 0 01367
                               STO LOSCAR
01046 0 34000 0 01370
                         CFHI
                              CAS HIBEST
                                                       COMPARE CURRENT BEST WITH NEW CHOICE
01047 0 02000 0 01054
                               TRA NEXTR
                                                       KEEP CURRENT BEST
01050 0 02000 0 01060
                                                       HIGH PARTS EQUAL
                               TRA CFLO
                                                       STORE NEW CHOICE
01051 0 60100 0 01370
                               STO HIBEST
01052 -0 60000 0 01371
                               STQ LOBEST
01053 -0 63400 2 01360
                               SXD INDEXR:2
                                                       STORE NEW R
01054 1 00002 2 01055
                         NEXTR TXI NEXTR+1.2.2
                                                       RETURN TO START FOR V/U TO MODIFY FOR INV
01055 2 00002 1 00000
                               TIX 0:1:2
01056 -0 53400 4 01376
                         EXIT LXD CBOXON,4
01057 0 02000 4 00001
                               TRA 1.4
                                                       HIGH PARTS EQUAL COMPARE LOW PARTS
01060 0 50000 0 01367
                         CFLO
                              CLA LOSCAR
01061 0 34000 0 01371
                               CAS LOBEST
01062 0 02000 0 01054
                               TRA NEXTR
01063 0 02000 0 01054
                               TRA NEXTR
01064 0 02000 0 01052
                               TRA CFHI+4
                                                       STORE NEW CHOICE
01065 0 50200 0 01366
                         ZEROV CLS HISCAR
01066 0 12000 0 01054
                               TPL NEXTR
                                                       V EQUAL ZERO U MUST BE PLUS
01067 0 56000 0 01367
                               LDQ LOSCAR
                                                       LOW U
01070 0 76500 0 00000
                               LRS
01071 0 02000 0 01045
                               TRA CFHI-1
01072 0 50000 0 01120
                         INVER CLA PRIME+1
01073 0 60100 0 01055
                               STO NEXTR+1
                                                       SET SWITCH FOR INVERSION
01074 0 50000 0 01347
                               CLA FEASYX
01075 0 77100 0 00001
                               ARS 1
01076 0 40200 0 01334
                               SUR IMANDI
01077 0 73400 4 00000
                               PAX 0,4
                                                       SET TO CHECK BASIS HEADINGS
01100 0 50000 0 01300
                         BASIS CLA NOUGHT
                               CAS 0,4
01101 0 34000 4 00000
01102 0 02000 0 01105
                               TRA BASIS+5
01103 0 02000 0 01105
                               TRA BASIS+5
01104 0 02000 0 01054
                               TRA NEXTR
                                                       BASIS HEADING NOT ARTIFICIAL
01105 -0 40000 1 00000
                               SBM 0.1
01106 0 56000 1 00000
                                                       MINUS ABSOLUTE VALUE OF U
                               LDQ 0.1
01107 0 76500 0 00000
                               LRS
```

```
ADD MINIU
01110 0 40000 0 01121
                                                       U TOO SMALL FOR PIVOT ELEMENT
                               TPL NEXTR
01111 0 12000 0 01054
                               SUB MINIU
01112 0 40200 0 01121
                               TRA CFHI-1
01113 0 02000 0 01045
                         MODEY TIX BASIS,4,1
01114 2 00001 4 01100
                                                       ERROR
                               HPR 4095
01115 0 42000 0 07777
                               HTR MODFY+1
01116 0 00000 0 01115
                                                       SWITCH FOR V/U
                         PRIME TIX START 11.2
01117 2 00002 1 00765
                                                       SWITCH FOR INVERSION
                               TIX MODFY,1,2
01120 2 00002 1 01114
                                                       2 TO MINUS 17 TOLERANCE
                         MINIU OCT 160000000000
01121 +1600000000000
                         POWER OCT 177000000000
01122 +177000000000
                                                       NEGATIVE V TOLERANCE
                         TOLMI OCT 140000000000
01123 +1400000000000
                               ORG MCRORG
                 00020
                               HED
                 00020
                                                       INTERLUDE TO INITIALIZE ELIMN
                        PREFO9 CLA WORIGN
00020 0 50000 0 01341
                               STA ELIMN+6
00021 0 62100 0 00756
                               STA XCHGW+3
00022 0 62100 0 00763
                               SUB ONEADR
00023 0 40200 0 01301
                               STA ELIMN+4
00024 0 62100 0 00754
                               STA XCHGW+1
00025 0 62100 0 00761
                               ADD 2MAND2
00026 0 40000 0 01335
                               ADD TWOADR
00027 0 40000 0 01302
                               STA ARITH+1
00030 0 62100 0 01053
                               STA MPONY+1
00031 0 62100 0 01137
                                SUR ONEADR
00032 0 40200 0 01301
                               STA MPONY
00033 0 62100 0 01136
                                STA ARITH
00034 0 62100 0 01052
                                STA DRLUP+7
00035 0 62100 0 01046
                                CLA VORIGN
00036 0 50000 0 01340
                                STA XCHGV+1
00037 0 62100 0 01010
                                STA VCOMP-1
00040 0 62100 0 01016
                                SUB ONEADR
00041 0 40200 0 01301
                                STA XCHGV
00042 0 62100 0 01007
                                STA VCOMP-2
00043 0 62100 0 01015
                                ADD 2MAND2
00044 0 40000 0 01335
                                ADD TWOADR
00045 0 40000 0 01302
                                STA MPADD+7
00046 0 62100 0 01073
                                STA MPONY-2
00047 0 62100 0 01134
                                SUB ONEADR
00050 0 40200 0 01301
                                STA MPADD+6
00051 0 62100 0 01072
00052 0 62100 0 01133
                                STA MPONY-3
                                CLA TORIGN
00053 0 50000 0 01342
                                ADD 2MAND2
00054 0 40000 0 01335
                                STA DRLUP+2
00055 0 62100 0 01041
                                STA MPADD+3
00056 0 62100 0 01057
00057 0 62100 0 01127
                                STA STSUM+2
                                ADD ONEADR
00060 0 40000 0 01301
                                STA MPADD+4
00061 0 62100 0 01070
00062 0 62100 0 01130
                                STA STSUM+3
                                                        RETURN TO EXECUTIVE LOADER
00063 0 02000 4 00001
                                TRA 1.4
                                ORG SRORIG
                  00750
                                                        SAME LOC AS SRORIG
00750 0 50000 0 01360
                          ELIMN CLA INDEXR
00751 0 76000 0 00006
                                COM
00752 -0 73400 2 00000
                                PDX 0+2
                                                        CLEAR OVERFLOW TOGGLE FOR ACC
                                TOV ELIMN+4
00753 0 14000 0 00754
```

```
00754 0 50200 2 00000
                               CLS 0.2
                                                       W/0-1
00755 0 60100 0 01366
                               STO HISCAR
00756 0 50200 2 00000
                               CLS 0.2
                                                       MIO
00757 0 60100 0 01367
                               STO LOSCAR
00760 0 50200 0 01315
                         XCHGW CLS FLUNTY
00761 0 60100 2 00000
                               STO 0:2
                                                       W/0-1
00762 0 50200 0 01314
                               CLS FLZERO
00763 0 60100 2 00000
                               STO 0.2
                                                       W/0
00764 0 50000 0 01315
                         FLDIV CLA FLUNTY
00765 0 24000 0 01366
                               FDH HISCAR
                                                       OVERFLOW AND UNDERFLOW OF HIGH QUOT
00766 -0 60000 0 00000
                               STQ COMMON
                                                       IMPOSSIBLE IN RANGES USED
00767 0 16100 0 00770
                               TQO FLDIV+4
                                                       CLEAR MQ TOGGLE
00770 0 24000 0 01366
                               FDH HISCAR
00771 0 16100 0 01143
                               TQO DIVUN
                                                       UNDERFLOW MEANS DENOM IS 2 TO 102 APPROX
00772 -0 60000 0 00001
                               STQ COMMON+1
00773 0 50200 0 01367
                               CL5 LOSCAR
00774 0 24000 0 01366
                               FDH HISCAR
00775 0 26000 0 00000
                               FMP COMMON
00776 0 30000 0 00001
                               FAD COMMON+1
00777 0 30000 0 00000
                               FAD COMMON
01000 0 07400 4 01100
                               TSX SYNAG-1.4
01001 0 60100 0 01366
                               STO HISCAR
01002 -0 60000 0 01367
                               STQ LOSCAR
01003 0 53400 1 01335
                         YCOMP LXA 2MAND2+1
01004 0 07400 4 01052
                               TSX ARITH.4
01005 2 00002 1 01004
                               TIX YCOMP+1,1,2
01006 0 53400 1 01335
                               LXA 2MAND2.1
01007 0 50000 2 00000
                                                       V/0-1
                         XCHGV CLA 0.2
01010 0 56000 2 00000
                               LDQ 0.2
                                                       V/0
01011 0 60100 0 01366
                               STO HISCAR
01012 -0 60000 0 01367
                               STO LOSCAR
01013 0 10000 0 01031
                               TZE EXIT
                                                       TEST THETA FOR ZERO
01014 0 76000 0 00000
                               CLM
01015 0 60200 2 00000
                                                       V/0-1
                               SLW 0.2
01016 0 60200 2 00000
                               SLW-0.2
                                                       V/0
                         VCOMP PSE 99
01017 0 76000 0 00143
                                                       SWITCH ON FOR ADDITION
01020 0 07400 4 01052
                               TSX ARITH 4
01021 2 00002 1 01017
                               TIX VCOMP.1.2
01022 -0 76000 0 00141
                               MSE 97
                                                       TEST FOR PLP
01023 0 02000 0 01031
                               TRA EXIT
01024 0 76000 0 00141
                               PSF 97
01025 -0 76000 0 00142
                               MSE 98
                                                       TEST FOR SECOND TIME
01026 0 02000 0 01033
                               TRA EXIT+2
01027 0 76600 0 00304
                                                       STORE NEW RT-HAND SIDE ON DRUM
                               MDR 4
01030 0 07400 4 01037
                               TSX DRLUP.4
01031 -0 53400 4 01376
                         EXIT
                              LXD CBOXON,4
01032 0 02000 4 00001
                               TRA 1,4
01033 0 76200 0 00304
                               RDR 4
01034 0 07400 4 01044
                               TSX DRLUP+5.4
                                                       READ PLP CHANGE VECTOR TO T
01035 0 76000 0 00142
                               SLN 2
                                                       TURN ON ALTERNATOR FOR PASS 2
01036 0 02000 0 01006
                               TRA XCHGV-1
01037 0 53400 1 01335
                         DRLUP LXA 2MAND2.1
01040 0 46000 0 01324
                              LDA BDRORG
                                                       READ OR WRITE RT-HAND SIDE
01041 0 70000 1 00000
                               CPY 0,1
                                                       T/0+2M+2
01042 2 00001 1 01041
                               TIX DRLUP+2,1,1
```

```
01043 0 02000 4 00001
                               TRA 1,4
01044 0 53400 1 01335
                               LXA 2MAND2 1
                                                       READ PLP CHANGE VECTOR
                               LDA EDRORG
01045 0 46000 0 01326
                               CPY 0+1
                                                       M/0 + 2M+2
01046 0 70000 1 00000
                               TIX DRLUP+7,1,1
01047 2 00001 1 01046
01050 0 76200 0 00304
                               RDR 4
                               TRA DRLUP
01051 0 02000 0 01037
01052 0 50000 1 00000
                         ARITH CLA 0,1
                                                       W/0 + 2M + 2
01053 0 56000 1 00000
                               LDQ 0,1
                                                       W/0 + 2M+3
01054 -0 63400 4 01377
                               SXD CBOXTW.4
01055 0 10000 0 01140
                               TZE MPONY+2
01056 0 07400 4 00636
                               TSX DPFMUL,4
                               TRA OVMPY
01057 0 02000 0 01145
01060 -0 76000 0 00143
                               SLT 3
                                                       TEST FOR ADDITION
01061 0 02000 0 01136
                               TRA MPONY
01062 0 60100 0 00000
                                                       DP PRODUCT TO AUGEND
                               STO COMMON
01063 +0 60000 0 00001
                               STQ COMMON+1
01064 -0 76000 0 00142
                         MPADD SLT 2
                                                       TEST FOR SECOND PASS
01065 0 02000 0 01072
                               TRA MPADD+6
01066 0 76000 0 00142
                               SLN 2
                                                       T/0+2M+2
01067 0 50000 1 00000
                               CLA 0.1
                                                       T/0+2M+3
01070 0 56000 1 00000
                               LD0 0,1
01071 0 02000 0 01074
                               TRA MPADD+8
01072 0 50000 1 00000
                                                       V/0+2M+2
                               CLA 0.1
01073 0 56000 1 00000
                               LDQ 0.1
                                                       V/0+2M+3
01074 0 07400 4 00607
                               TSX DPFADD+4
01075 0 02000 0 01151
                               TRA OVADD
01076 0 07400 4 01100
                               TSX SYNAG-1:4
01077 0 02000 0 01125
                               TRA STSUM
01100 0 60100 0 00000
                               STO COMMON
                                                       MAKE SIGNS OF DP SUM AGREE
01101 0 16200 0 01105
                         SYNAG TQP SYNAG+4
01102 -0 12000 0 01124
                               TMI STSUM-1
01103 0 76000 0 00144
                               SLN 4
                                                       REMEMBER SIGN OF NUMBER
                               TRA SYNAG+6
01104 0 02000 0 01107
01105 0 12000 0 01124
                               TPL STSUM-1
01106 0 76500 0 00000
                               LRS
                                                       MAKE MO NEG
01107 -0 32000 0 01316
                               ANA MASKCH
01110 0 40200 0 01332
                               SUB BORROW
                               STQ COMMON+1
01111 -0 60000 0 00001
01112 -0 30000 0 00001
                               UFA COMMON+1
01113 0 16100 0 01114
                               TQO SYNAG+11
                               STO COMMON+1
01114 0 60100 0 00001
01115 0 50200 0 01301
                               CLS ONEADR
01116 0 40100 0 00000
                               ADM COMMON
                               FAD COMMON+1
01117 0 30000 0 00001
01120 -0 76000 0 00144
                               SLT 4
01121 -0 76000 0 00003
                               55M
01122 0 76500 0 00000
                               LRS
01123 0 16100 0 01163
                               TQO ZERO
                               TRA 1.4
01124 0 02000 4 00001
01125 -0 76000 0 00142
                         STSUM SLT 2
01126 0 02000 0 01133
                               TRA STSUM+6
01127 0 60100 1 00000
                               STO 0.1
                                                       T/0+2M+2
01130 -0 60000 1 00000
                               STQ 0.1
                                                       T/0+211+3
01131 0 76000 0 00142
                               SLN 2
```

```
01132 0 02000 0 01140
                               TRA MPONY+2
                                                       V/0+2M+2
                               STO 0.1
01133 0 60100 1 00000
01134 -0 60000 1 00000
                                                       V/0+2M+3
                               STQ 0,1
                               TRA MPONY+2
01135 0 02000 0 01140
                         MPONY STO 0.1
                                                       W/0+2M+2
01136 0 60100 1 00000
                                                       W/O+2M+3
                               STQ 0,1
01137 -0 60000 1 00000
                               SLT 3
01140 -0 76000 0 00143
                               LXD CBOXTW.4
01141 -0 53400 4 01377
                               TRA 1,4
01142 0 02000 4 00001
                                                       DIV UNDERFLOW ERROR STOP
                         DIVUN HPR 280
01143 0 42000 0 00430
01144 0 02000 0 01143
                               TRA DIVUN
01145 0 50000 0 01147
                         OVMPY CLA OVMPY+2
                               TRA OVADD+1
01146 0 02000 0 01152
                               HTR 277
01147 0 00000 0 00425
01150 0 00000 0 00415
                               HTR 269
                         OVADD CLA OVADD-1
01151 0 50000 0 01150
01152 -0 76000 0 00141
                               SLT 1
                               SUB TWOADR
01153 0 40200 0 01302
                               SLT 2
01154 -0 76000 0 00142
01155 0 40200 0 01302
                               SUB TWOADR
                               SLT 3
01156 +0 76000 0 00143
                               SUB ONEADR
01157 0 40200 0 01301
01160 0 62100 0 03161
                               STA OVHLT
                         OVHLT HPR
01161 0 42000 0 00000
01162 0 02000 0 01161
                               TRA OVHLT
01163 0 50000 0 01300
                               CLA MOUGHT
                               LDQ NOUGHT
01164 0 56000 0 01300
01165 0 02000 4 00001
                               TRA 1.4
                               ORG MCRORG
                 00020
                 00020
                               HED
                        PREF10 CLA WORIGN
00020 0 50000 0 01341
00021 0 40000 0 01335
                               ADD 2MAND2
                               STA FULEL
00022 0 62100 0 00760
00023 0 62100 0 00764
                               STA FULEL+4
                               ADD ONEADR
00024 0 40000 0 01301
                               STA FULEL+5
00025 0 62100 0 00765
                               STA FULEL+11
00026 0 62100 0 00773
                               TRA 1.4
00027 0 02000 4 00001
                               ORG SRORIG
                 00750
                         YTODR CLA DR3LIM
00750 0 50000 0 01352
                               STO COMMON
00751 0 60100 0 00000
00752 0 10000 0 00756
                               TZF YTODR+6
                               RDR 3
00753 0 76200 0 00303
00754 0 46000 0 01352
                               LDA DR3LIM
                                                        READ WORD COUNT OF LAST ELIMINATION
00755 0 70000 0 00000
                               CPY COMMON
                               LXA 2MAND2.3
00756 0 53400 3 01335
                                                        I COUNTER
00757 .0 53400 4 01300
                               LXA NOUGHT 4
00760 0 50000 1 00000
                         FULEL CLA 0.1
                                                        W/0+2M+2
                               TNZ FULEL+4
00761 -0 10000 0 00764
                               TNX WDRUM 1 1 2
00762 -2 00002 1 00776
                               TXI FULEL, 4,1
00763 1 00001 4 00760
                                                        4/0+2M+2
00764 0 60100 2 00000
                               STO 0.2
00765 -0 50000 1 00000
                               CAL 0.1
                                                       CLEAR LOW CHARACTERISTIC
00766 -0 32000 0 01317
                               ANA MASKER
                               SLW COMMON+1
00767 0 60200 0 00001
```

```
00770 -0 75400 4 00000
                               ALS 9
00771 0 76700 0 00011
                               ORA COMMON+1
00772 -0 50100 0 00001
                                                       W/0+2M+3
                               SLW 0:2
00773 0 60200 2 00000
                               TIX FULEL+2,2,2
00774 2 00002 2 00762
                               LXA NOUGHT : 2
00775 0 53400 2 01300
                         WDRUM PXD 0.2
00776 -0 75400 2 00000
                               SUB 2MAN2D
00777 0 40200 0 01336
                               SUB DECR3
01000 0 40200 0 01030
                               SLW COMMON+4
01001 0 60200 0 00004
01002 0 77100 0 00022
                               ARS 18
                               STA COMMON
01003 0 62100 0 00000
                               ADD THREEA
01004 0 40000 0 01303
                               PAX 0.1
01005 0 73400 1 00000
01006 0 76600 0 00303
                               MDR 3
                               SUB WORIGN
01007 0 40200 0 01341
01010 0 62100 0 01020
                               STA CONEL
                               CLA ITERNO
01011 0 50000 0 01350
01012 0 40000 0 01360
                               ADD INDEXR
                               STO COMMON+3
01013 0 60100 0 00003
                               LDA DR3LIM
01014 0 46000 0 01352
                                                       VECTOR WORD COUNTS
                               CPY COMMON
01015 0 70000 0 00000
                                                       INDEX R AND ITER NO
                               CPY COMMON+3
01016 0 70000 0 00003
                               CPY INDEXS
01017 0 70000 0 01361
01020 0 70000 1 00000
                         CONEL CPY 0.1
01021 2 00001 1 01020
                               TIX CONEL 111
                               CPY COMMON+4
01022 0 70000 0 00004
                               CLA DR3LIM
01023 0 50000 0 01352
01024 0 40000 0 00000
                               ADD COMMON
01025 0 62100 0 01352
                               STA DR3LIM
                               LXD CBOXON:4
01026 -0 53400 4 01376
                         EXIT TRA 1+4
01027 0 02000 4 00001
                         DECR3 HTR 0,0,3
01030 0 00003 0 00000
                               ORG MCRORG
                 00020
                 00020 K
                               HED
                                                       LOADING INTERLUDE FOR INITIALIZATION
00020 0 50000 0 01341
                        PREFII CLA WORIGN
                               ADD 2MAND2
00021 0 40000 0 01335
                               STA DLOOP
00022 0 62100 0 00756
                               STA DLOOP+2
00023 0 62100 0 00760
00024 0 62100 0 00761
                               STA DLOOP+3
                               STA MOVEQ+1
00025 0 62100 0 01131
                               STA STDIF+5
00026 0 62100 0 01164
                               STA FLADD
00027 0 62100 0 01040
                               STA RESLT
00030 0 62100 0 01046
00031 0 40000 0 01301
                               ADD ONEADR
                               STA FLADD+1
00032 0 62100 0 01041
                               STA RESLT+1
00033 0 62100 0 01047
                               STA MOVEQ+2
00034 0 62100 0 01132
                               CLA TORIGN
00035 0 50000 0 01342
                               STA EXIT+5
00036 0 62100 0 01061
00037 0 40200 0 01301
                               SUB ONEADR
                               STA GETUS+1
00040 0 62100 0 01013
                               CLA TORIGN
00041 0 50000 0 01342
                               ADD 2MAND2
00042 0 40000 0 01335
00043 0 62100 0 01157
                               STA STDIF
```

PXD 0.4

```
00044 0 40000 0 01301
                               ADD ONEADR
00045 0 62100 0 01160
                               STA STDIF+1
00046 0 50000 0 01334
                               CLA 1MAND1
00047 0 40000 0 01337
                               ADD HORIGN
00050 0 62100 0 01021
                               STA SURCH
00051 0 62100 0 00765
                               STA FIND
00052 0 50000 0 01335
                               CLA 2MAND2
00053 0 40000 0 01340
                               ADD VORIGN
00054 0 62100 0 01031
                               STA PIKUP
00055 0 40000 0 01301
                               ADD ONEADR
00056 0 62100 0 01032
                               STA PIKUP+1
00057 0 02000 4 00001
                               TRA 1,4
                                                       RETURN TO EXEC LOADER
                 00750
                               ORG SRORIG
00750 0 76200 0 00304
                         CHECK RDR 4
                                                       SAME LOC AS SPORIG
00751 0 16100 0 00752
                               TQO CHECK+2
00752 0 14000 0 00753
                               TOV CHECK+3
00753 0 76000 0 00144
                               SLN 4
00754 0 46000 0 01324
                               LDA BDRORG
                                                       READ RT HAND SIDE TO W
00755 0 53400 7 01335
                               LXA 2MAND2.7
00756 0 70000 1 00000
                         DLOOP CPY 0,1
                                                       W/0+2M+2
00757 2 00001 1 00756
                               TIX DLOOP,1,1
00760 0 50200 2 00000
                               CLS 0.2
                                                       W/0+2M+2 IN BOTH
00761 0 60100 2 00000
                               STO 0.2
                                                       CHANGE SIGN OF B
00762 2 00001 2 00760
                               TIX DLOOP+2,2,1
00763 0 53400 3 01334
                               LXA 1MAND1.3
00764 0 50000 0 01300
                               CLA NOUGHT
00765 0 34000 1 00000
                         FIND CAS 0.1
                                                       H/0+M+2
00766 0 02000 0 01031
                         ZEROS TRA PIKUP
00767 0 02000 0 01031
                               TRA PIKUP
00770 2 00001 1 00771
                         NEGJ
                              TIX NFGJ+1,1,1
00771 2 00002 4 00764
                               TIX FIND-1:4:2
00772 -0 76000 0 00144
                               SLT 4
00773 0 02000 0 01121
                               TRA ERROR
00774 0 02000 0 00777
                               TRA REDTP
00775 0 76400 0 00205
                         BST5
                              BST 5
                               HPR 488
00776 0 42000 0 00750
                                                       750 OCTAL ERROR STOP
00777 0 76200 0 00225
                         REDTP RTB 5
01000 0 50000 0 01342
                               CLA TORIGN
01001 0 62100 0 01003
                               STA REDTP+4
01002 0 40000 0 01301
                               ADD ONEADR
01003 0 70000 0 00000
                               CPY
01004 0 02000 0 01001
                               TRA REDTP+2
01005 0 02000 0 01121
                               TRA ERROR
01006 0 77100 0 00355
                               ARS 237
01007 0 77100 0 00355
                               ARS 237
01010 -0 76000 0 00012
                               RTT
01011 0 02000 0 00775
                               TRA BST5
01012 0 53400 1 01311
                         GETJS LXA INFINY 1
01013 0 56000 1 00000
                                                       T/0-1
                               CLA 0.1
01014 0 34000 0 01300
                               CAS NOUGHT
01015 0 02000 0 01020
                               TRA SURCH-1
01016 0 02000 0 00777
                               TRA REDTP
                                                     END OF MATRIX RECORDS
01017 2 00002 1 01013
                               TIX GETJS+1,1,2
                                                       SKIP OVER CURTAINS
01020 0 53400 4 01334
                               LXA 1MAND1,4
01021 0 34000 4 00000
                         SURCH CAS 0.4
                                                       H/3+M+1
```

```
01022 0 02000 0 01024
                         FORJ TRA EQUAL+1
                         EQUAL TRA PIKUP-3
01023 0 02000 0 01026
                               TIX SURCH,4,1
01024 2 00001 4 01021
                               TIX GETUS+1.1.2
01025 2 00002 1 01013
                               PXD 0.4
01026 -0 75400 4 00000
                               ALS 1
01027 0 76700 0 00001
                               PDX 0,4
01030 -0 73400 4 00000
                                                       V/0+2M+2
                         PIKUP CLA 0,4
01031 0 50000 4 00000
                               LDQ 0.4
                                                       V/0+2M+3
01032 0 56000 4 00000
                               SLT 4
01033 -0 76000 0 00144
                               TRA EXIT+2
01034 0 02000 0 01056
01035 0 76000 0 00144
                               SLN 4
                               STO COMMON
01036 0 60100 0 00000
                               STO COMMON+1
01037 -0 60000 0 00001
                                                       W/0+2M+2
01040 0 50000 4 00000
                         FLADD CLA 0,4
01041 0 56000 4 00000
                               LDQ 0.4
                                                       W/0+2M+3
                               SXD CBOXTW:4
01042 -0 63400 4 01377
                               TSX DPFADD 4
01043 0 07400 4 00607
                               TRA ADOVE
01044 0 02000 0 01124
                               LXD CBOXTW+4
01045 -0 53400 4 01377
                                                       W/0+2M+2
01046 0 60100 4 00000
                         RESLT STO 0,4
01047 -0 60000 4 00000
                               STQ 0.4
                                                       W/0+2M+3
                               SLT 4
01050 -0 76000 0 00144
01051 0 02000 0 01111
                               TRA PLACE
                               SLN 4
01052 0 76000 0 00144
                               TIX NEGJ,2,1
01053 2 00001 2 00770
                         EXIT LXD CBOXON+4
01054 -0 53400 4 01376
01055 0 02000 0 01130
                               TRA MOVEQ
                               TZE PLACE+5
01056 0 10000 0 01116
                               STO HISCAR
01057 0 60100 0 01366
                               STQ LOSCAR
01060 -0 60000 0 01367
                                                       T/O GET J ADDRESS
                               CLA 0,1
01061 0 50000 1 00000
01062 0 62100 0 01107
                               STA PIXY
                               STA PLACE
01063 0 62100 0 01111
                               ADD ONEADR
01064 0 40000 0 01301
                               STA ONTAP
01065 0 62100 0 01066
                                                       SP FIXED PT ELEMENT
01066 0 50000 0 00000
                         ONTAP CLA
                               TZE PLACE
01067 0 10000 0 01111
                               LRS 27
01070 0 76500 0 00033
01071 -0 10000 0 01075
                               TN7 DUMMY+1
                               CLA DUMMY
01072 0 50000 0 01074
                               TRA DUMMY+5
01073 0 02000 0 01101
01074 +205000000000
                         DUMMY OCT 205000000000
                               LRS 8
01075 0 76500 0 00010
                               CLA 141ADR
01076 0 50000 0 01307
01077 0 76300 0 00010
                               LLS 8
01100 0 76700 0 00023
                               ALS 19
                               STO COMMON
01101 0 60100 0 00000
01102 0 50000 0 01306
                               CLA 133ADR
01103 0 76300 0 00033
                               LLS 27
                               FAD COMMON
01104 0 30000 0 00000
                               TSX DPFMUL,4
01105 0 07400 4 00636
                               TRA MPOVE
01106 0 02000 0 01126
                                                       2M+2-2I
01107 -0 53400 4 00000
                         PIXY LXD 0.4
                               TRA FLADD-2
01110 0 02000 0 01036
```

0.5706 464560606060

```
TEST FOR LAST ELEM
01111 0 50000 0 00000
                         PLACE CLA
                               TMI PLACE+5
01112 -0 12000 0 01116
                               CLA PLACE
01113 0 50000 0 01111
                               ADD TWOADR
01114 0 40000 0 01302
                               TRA ONTAP-4
01115 0 02000 0 01062
                               TIX GETUS+5,2,1
01116 2 00001 2 01017
                               REW 5
01117 0 77200 0 00205
01120 0 02000 0 01054
                               TRA EXIT
01121 0 77200 0 00205
                         ERROR REW 5
01122 0 42000 0 00577
                                                       577 ERROR STOP
                               HPR 383
01123 0 02000 0 00750
                               TRA CHECK
                                                       510 ERROR STOP
01124 0 42000 0 00510
                         ADOVF HPR 328
                               TRA ADOVF
01125 0 02000 0 01124
                                                       520 ERROR STOP
01126 0 42000 0 00520
                         MPOVE HPR 336
                               TRA MPOVE
01127 0 02000 0 01126
                         MOVEQ LXA 2MAND2:3
01130 0 53400 3 01335
                                                       W/0+2M+2
                               CLA 0+1
01131 0 50000 1 00000
                               LDQ 0.1
                                                       W/0+2M+3
01132 0 56000 1 00000
                               STO COMMON
01133 0 60100 0 00000
                                                       MAKE SIGNS OF DP NUM AGREE
                         SYNAG TOP SYNAG+4
01134 0 16200 0 01140
                               TMI STDIF
01135 -0 12000 0 01157
                               SLN 4
01136 0 76000 0 00144
                               TRA SYNAG+6
01137 0 02000 0 01142
                               TPL STDIF
01140 0 12000 0 01157
                                                       MAKE MQ NEG
01141 0 76500 0 00000
                               LRS
                               ANA MASKCH
01142 -0 32000 0 01316
01143 0 40200 0 01332
                               SUB BORROW
                               STQ COMMON+1
01144 -0 60000 0 00001
                               UFA COMMON+1
01145 -0 30000 0 00001
                               TQO SYNAG+11
01146 0 16100 0 01147
                               STO COMMON+1
01147 0 60100 0 00001
                               CLS ONEADR
01150 0 50200 0 01301
                               ADM COMMON
01151 0 40100 0 00000
                               FAD COMMON+1
01152 0 30000 0 00001
01153 -0 76000 0 00144
                               SLT 4
                               SSM
01154 -0 76000 0 00003
                               LRS
01155 0 76500 0 00000
                               TQO ZERO
01156 0 16100 0 01167
                                                       T/O+2M+2 PUT DIFF IN T
01157 0 60100 1 00000
                         STDIF STO 0:1
                                                       T/0+2M+3
01160 -0 60000 1 00000
                               STQ 0.1
                               TIX MOVEQ+1,1,2
01161 2 00002 1 01131
                                                       READ RT HAND SIDE TO W
01162 0 76200 0 00304
                               RDR 4
                               LDA BDRORG
01163 0 46000 0 01324
                                                       W/0+2M+2
                               CPY 0.2
01164 0 70000 2 00000
01165 2 00001 2 01164
                               TIX STDIF+5,2,1
01166 0 02000 4 00001
                               TRA 1,4
01167 0 50000 0 01300
                               CLA NOUGHT
                         ZERO
                               LDQ NOUGHT
01170 0 56000 0 01300
01171 0 02000 0 01157
                               TRA STDIF
                 05670
                               ORG 3000
                               HED
                 05670 L
                 05670
                         JOBID 855 12
                                                         BER
                               BCD 4CHECK SOLUTION
05704 233025234260
05705 624643646331
```

05707	606060222551				-
05710	475131442143	BCD	4PRIMAL-DUAL SOLUTIONS	SBPI	7
05711	402464214360				
05712	624643646331				
05713	464562224731				
05714	222162316260	BCD	4BASIS INVERTED	BER	6
05715	314565255163				
05716	252460606060				
05717	606060222551				
05720	633025632160	BCD	ATHETA AT MAXIMUM	BER	5
05721	216360442167				
05722	314464446060				
05723	606060222551				
05724	464763314421	BCD	40PTIMAL SOLUTION	BER	4
05725	436062464364	4 4-			
05726	633146456060				
05727	606060222551				
05730	262521623122	RCD	4FEASIBLE SOLUTION	BER	3
05731	432560624643	127 94 40	TI LECTION COLOTTON	2411	
05732	646331464560				
05733	606060222551				
05734	454660262521	BCD	4NO FEASIBLE SOLUTION	RER	2
		ΘC U	AND TEASTEE SOLUTION	ULK	٤.
05735	623122432560				
05736	624643646331				
05737	464560222551	0.60	LEND DE DUACE ONE	aco	1
05740	254524604626	BCD	4END OF PHASE ONE	BER	1
05741	604730216225				
05742	604645256060				
05743	606060222551				•
05744	254524604626	BCD	4END OF STAGE	BER	-0
05745	606263212725				
05746	6060606060				
05747	606060222551				_
95 75 0	237023432560	BCD	4CYCLE PRINT	EPI	-1
05751	475131456360				
05752	606060606060				
05753	606060254731				
05754	452566606246	BCD	4NEW SOLUTION	BPI	- 2
05755	436463314645				
05756	606060606060				
05757	606060224731				
05760	644522466445	BCD	4UNBOUNDED SOLUTION	API	~ 3
05761	242524606246				
05762	436463314645	•			
05763	606060214731				
05764	513127306360	RCD	4RIGHT HAND SIDE OPEN	GP I	-4
05765	302145246062				
05766	312425604647				
05767	254560274731				
05770	442163513167	TITLES ROD	4MATRIX SINGULAR	A F	PRCODE 15 -5
05771	606231452764	I A I WALL OF CO	THE INTERIOR OF THE PARTY.	,, ,	11-2-marin #W P
05772	432151606060				
05773	606060216060				
05774	603163255121	I INFO BCD	4 ITERATION 000 STAG	F 00	
05775	633146456000	LINEZ DCD	4 TENATION OUG SINO	00	
UDITO	033140470000				

```
05776 000060606263
05777
       212725600000
06000
                               BCD 2 FORM 00
       606026465144
06001
       600000606060
06002
       006260316200
                               BCD 105 ISO
06003
       606060604160
                         LINE3 BCD 4
                                                      BETA
06004
       606060606060
06005
       -606060606060
06006 222563216060
06007
       606060606060
                               BCD 4
                                          I
                                                        0
06010 316060606060
06011 606060606060
06012
       606000606060
06013
       -606060606060
                               BCD 4
                                                   00
06014 606060606060
06015 606060000060
06016 606060606060
06017 0 53400 4 01300
                         START LXA NOUGHT 4
06020 -0 63400 4 06437
                               SXD 54ADR +4
06021 0 53400 3 06723
                               LXA SIX,3
                                                                  CARD
06022 0 50000 1 05676
                               CLA JOBID+6,1
06023 0 60100 1 06701
                        REDHED STO D+6.1
                               TIX REDHED-1,1,1
06024 2 00001 1 06022
                                                                   AND SET
06025 0 50000 2 05704
                               CLA JOBID+12.2
06026 0 60100 2 06741
                               STO D+38:2
06027 2 00001 2 06025
                               TIX REDHED+2,2,1
                                                                   PRINT LINE
06030 0 07400 4 06550
                               TSX SEPRNT,4
06031 0 07400 4 06537
                               TSX RITEB,4
                                                                  DOUBLE
06032 0 07400 4 06537
                               TSX RITEB,4
                                                                  SPACE
06033 0 53400 1 06723
                         SETL2 LXA SIX.1
                                                     PICKUP
06034 0 50000 1 06002
                               CLA LINE2+6,1
                                                                  AND
06035 0 60100 1 06701
                               STO D+6,1
                                                                  SET
06036 2 00001 1 06034
                               TIX SETL2+1.1.1
                                                                  FIRST
06037 0 50000 0 01374
                               CLA PRODE
                                                                  EIGHT
06040 -0 12000 0 06045
                               TMI SETL2+10
                                                                  WORDS
06041 0 50000 0 06005
                               CLA LINE3+2
                                                                  OF
06042 0 60100 0 06733
                               STO D+32
                                                                  LINE
06043 0 60100 0 06734
                               STO D+33
                                                                  TWO
06044 0 02000 0 06060
                               TRA WHICH
06045 0.76000 0.00000
                               CLM
06946 0 56000 0 01361
                               LDQ INDEXS
06047 -0 76300 0 00006
                               LGL 6
06050 -0 10000 0 06052
                               TN7 SETL2+15
06051 0 50000 0 06434
                               CLA BLANK
06052 -0 50100 0 06002
                               ORA SIS
06053 -0 76300 0 00006
                               LGL 6
06054 0 60200 0 06733
                               SLW D+32
06055 -0 60000 0 06734
                               STQ D+33
06056 -0 50000 0 06731
                               CAL 2BLNK
06057 -0 60200 0 06734
                               ORS D+33
06060 0 50000 0 01374
                         WHICH CLA PROODE
                                                     PUT PRINTER
06061 0 40000 0 01304
                         TITLE ADD FIVEAD
                                                                  CODE PLUS
06062 0 76700 0 00002
                               ALS 2
                                                                  FIVE IN
06063 0 73400 2 00032
                               PAX 26.2
                                                                  INDEX B
06064 0 53400 1 01303
                               LXA THREEA,1
                                                             PICKUP AND
```

```
CAL TITLES+3+3
06065 -0 50000 3 05773
                                                                  TITLES
                               LDQ TITLES+4,3
06066 0 56000 3 05774
                                                                  IN
                               LGL 18
06067 -0 76300 0 00022
                                                                  LINE TWO
                               SLW D+38.1
06070 0 60200 1 06741
                                                                  AND
                               TIX WHICH+5,1,1
06071 2 00001 1 06065
                                                                  SAVE
                               STQ COMMON+1
06072 -0 60000 0 00001
                                                                  THREE
                               CAL LINE3+2
06073 -0 50000 0 06005
                                                                  CHARACTERS
                               LDQ TITLES . 2
06074 0 56000 2 05770
                                                                   FOR LINE
                               LGL 18
06075 -0 76300 0 00022
                                                                  THREE
                               SLW D+34
06076 0 60200 0 06735
                                                             SET UP
06977 0 50000 0 01350
                               CLA ITERNO
                               TSX DIVBY3.4
06100 0 07400 4 06412
                                                                   CONVERSION
                               LXA THREEA,2
06101 0 53400 2 01303
                                                                   ROUTINE
                               CLA TEN
06102 0 50000 0 06724
                                                             FOR
                               STA KEVIN+1
06103 0 62100 0 06515
                                                                   PRINTING
                               LXA KEVIN.4
06104 0 53400 4 06514
06105 -0 63400 4 06727
                               SXD BBOX 4
                               TSX CONVE +4
06106 0 07400 4 06500
                                                              SET UP
06107 0 50000 0 01351
                               CLA STAGES
                               TSX DIVBY3,4
06110 0 07400 4 06412
                                                                   CONVERSION
                               CLA SAVEME
06111 0 50000 0 06603
                                                                   ROUTINE
                               STA KEVIN+1
06112 0 62100 0 06515
                                                                   TO
                               LXD FIGHT 1
06113 -0 53400 1 06730
                                                                   PRINT
                               SXO BBOX 1
06114 -0 63400 1 06727
                                                                   5+1
06115 -0 53400 1 01301
                               LXD ONEADR,1
                               LXA THREEA.2
06116 0 53400 2 01303
                               TSX CONVE,4
06117 0 07400 4 06500
                               CLA PRICEX
06120 0 50000 0 01346
                               ARS 1
06121 0 77100 0 00001
                               TSX DIVBY3:4
06122 0 07400 4 06412
                               CLA BBOX
06123 0 50000 0 06727
                               STA KEVIN+1
06124 0 62100 0 06515
                               LXA THREEA 2
06125 0 53400 2 01303
                               TSX CONVE . 4
06126 0 07400 4 06500
                               TSX SEPRNT 4
06127 0 07400 4 06550
                                                                   DOUBLE
                               TSX RITEB,4
06130 0 07400 4 06537
                                                                   SPACE
                               TSX RITEB • 4
06131 0 07400 4 06537
                         SETL3 LXA SIX.1
06132 0 53400 1 06723
                               CLA LINE3+6,1
06133 0 50000 1 06011
                               STO D+6.1
06134 0 60100 1 06701
                                CLA LINE3+12+1
06135 0 50000 1 06017
                               STO D+38+1
06136 0 60100 1 06741
                               TIX SETL3+1,1,1
06137 2 00001 1 06133
06140 0 76000 0 00000
                               CLM
06141 0 56000 0 00001
                                LDQ COMMON+1
                                LGL 6
06142 -0 76300 0 00006
                                ALS 18
06143 0 76700 0 00022
                                ORS D+33
06144 -0 60200 0 06734
                                CLM
96145 9 76000 9 00000
                                LGL 18
06146 -0 76300 0 00022
                                ORS D+36
06147 -0 60200 0 06737
                                TSX SEPRNT.4
06150 0 07400 4 06550
                          SETML CLS ONEADR
06151 0 50200 0 01301
                                STO COMMON+1
06152 0 60100 0 00001
                                CLA HORIGN
06153 0 50000 0 01337
```

STORE

```
06154 0 40000 0 01334
                               ADD 1MAND1
06155 0 62100 0 06226
                               STA MAIN+5
06156 0 50000 0 01340
                               CLA VORIGN
06157 0 40000 0 01335
                               ADD 2MAND2
06160 0 62100 0 06250
                               STA DORG1+6
06161 0 40000 0 01301
                               ADD ONEADR
06162 0 62100 0 06251
                               STA DORG1+7
06163 0 50000 0 01341
                               CLA WORIGN
06164 0 40000 0 01335
                               ADD 2MAND2
06165 0 62100 0 06302
                               STA PICKB
06166 0 40000 0 01301
                               ADD ONEADR
06167 0 62100 0 06303
                               STA PICKB+1
06170 0 50000 0 01334
                               CLA 1MANDI
06171 0 76700 0 00022
                               ALS 18
06172 0 40000 0 01335
                               ADD 2MAND2
06173 0 60100 0 00012
                               STO COMMON+10
06174 0 50000 0 01342
                               CLA TORIGN
06175 0 40000 0 01335
                               ADD 2MAND2
06176 0 62100 0 06313
                               STA PIKER
06177 0 40000 0 01301
                               ADD ONEADR
06200 0 62100 0 06314
                               STA PIKER+1
96201 9 50000 9 01374
                               CLA PRCODE
06202 -0 12000 0 06215
                               TMI ADDRS+2
06203 0 40200 0 06335
                               SUB SEVEN
06204 0 10000 0 06210
                               TZF ADDRS-3
06205 0 50000 0 06304
                               CLA PICKB+2
06206 0 62100 0 06315
                               STA PIKER+2
76207 9 02000 0 06221
                               TRA MAIN
06210 0 50000 0 06213
                               CLA ADDRS
06211 0 62100 0 06315
                               STA PIKER+2
06212 0 02000 0 06221
                               TRA MAIN
06213 0 00000 0 06441
                         ADDRS
                                   DPFXP
06214 0 00000 0 06330
                                   TWONE+1
06215 0 40000 0 01304
                               ADD FIVEAD
06216 -0 10000 0 06210
                               TNZ ADDRS-3
06217 0 50000 0 06214
                               CLA ADDRS+1
06220 0 62100 0 06315
                               STA PIKER+2
06221 0 53400 1 06440
                        MAIN LXA TWELVE.1
                                                             CLEAR
06222 0 76000 0 00000
                         LINER CLM
                                                                  PRINTER
06223 0 60200 1 06707
                               SLW D+12.1
                                                                  LINE
06224 2 00001 1 06223
                               TIX MAIN+2.1.1
06225 -0 53400 4 00012
                               LXD COMMON+10,4
                                                             GET ACTIVITY
06226 -0 50000 4 00000
                               CAL 0,4
                                                                  NAME
06227 -0 10000 0 06231
                               TNZ MAIN+8
06230 -0 50000 0 06005
                               CAL LINE3+2
                                                                  PUT
06231 -0 76000 0 00001
                               PBT
                                                                  IT IN
06232 -0 50100 0 06435
                               ORA ABLNK
                                                                  PRINT
06233 0 76500 0 00006
                               LRS 6
06234 -0 50100 0 06435
                               ORA ABLNK
06235 0 60200 0 06673
                               SLW D
96236 9 76000 0 00000
                               CLM
06237 0 76300 0 00006
                               LLS 6
06240 0 56000 0 06436
                               LDO BBLNK
06241 -0 76300 0 00036
                               LGL 30
06242 0 60200 0 06674
                        DORGI SLW D+1
```

```
CLA DORGI
06243 0 50000 0 06242
                                                                  CONVERSION
                               STA KEVIN+1
06244 0 62100 0 06515
                               LXD EIGHT + 2
06245 -0 53400 2 06730
                                                                  LINE POSITION
                               SXD BBOX 2
06246 -0 63400 2 06727
                                                             PICKUP
                               LXA COMMON+10+4
06247 0 53400 4 00012
                                                                  V H1
06250 0 50000 4 00000
                               CLA 0,4
                                                                  AND LO
06251 0 56000 4 00000
                               LDQ 0.4
                                                                  AND CONVERT
                               TSX DPFLP.4
06252 0 07400 4 06336
                                                              INSERT
06253 0 76000 0 00000
                               CLM
                                                                  TWO
                               SLW COMMON
06254 0 60200 0 00000
                                                                  BLANKS
                               LXA ONEADR 1
06255 0 53400 1 01301
06256 0 53400 2 01302
                               LXA TWOADR +2
                                                                  AND THEN
                               TSX CONVE,4
06257 0 07400 4 06500
                               CLA COMMON+1
06260 0 50000 0 00001
                               ADD ONEADR
06261 0 40000 0 01301
                               STO COMMON+1
06262 0 60100 0 00001
                               SUB 1MAND1
06263 0 40200 0 01334
                               TMI PREXIT+2
06264 -0 12000 0 06267
                        PREXIT LXD CBOXON:4
05265 -0 53400 4 01376
                               TRA 1.4
06266 0 02000 4 00001
06267 0 50000 0 00001
                               CLA COMMON+1
                               TSX DIVRY3+4
06270 0 07400 4 06412
                               LXA THREEA,2
06271 0 53400 2 01303
06272 0 53400 1 01301
                               LXA ONEADR 1
                               TSX CONVE,4
06273 0 07400 4 06500
                                                              INSERT
06274 0 76000 0 00000
                               CLM
                                                                   TWO
                               SLW COMMON
06275 0 60200 0 00000
                                                                   BLANKS
                               LXA ONEADR 1
06276 0 53400 1 01301
06277 0 53400 2 01302
                               LXA TWOADR + 2
                                                                   AND THEN
                               TSX CONVE 4
06300 0 07400 4 06500
                                                              PICKUP
                               LXA COMMON+10+4
06301 0 53400 4 00012
                                                                   B H1
06302 0 50000 4 00000
                          PICKB CLA 0+4
                                                                   AND LO
                               LDQ 0.4
06303 0 56000 4 00000
                                                                   AND CONVERT
                               TSX DPFLP,4
06304 0 07400 4 06336
                                                              INSERT
                               CLM
06305 0 76000 0 00000
                                                                   TWO
                                SLW COMMON
06306 0 60200 0 00000
                                                                   MORE
                               LXA TWOADR 12
06307 0 53400 2 01302
                                                                   BLANKS
                               LXA ONEADR 1
06310 0 53400 1 01301
                                                                   AND THEN
                                TSX CONVE,4
06311 0 07400 4 06500
                                                              PICKUP
                                LXA COMMON+10+4
06312 0 53400 4 00012
                                                                   ER HI
                          PIKER CLA 0,4
06313 0 50000 4 00000
                                                                   AND LO
                               LDQ 0.4
06314 0 56000 4 00000
                                                                   AND CONVERT
                                TSX 0,4
06315 0 07400 4 00000
                                                              MOVE LAST
06316 0 53400 4 06723
                                LXA SIX,4
                                                                   HALF
                                CLA D+12:4
06317 0 50000 4 06707
                                                                   LINE
                                STO D+38.4
 06320 0 60100 4 06741
                                                                   OVER
                                TIX PIKER+4,4,1
 06321 2 00001 4 06317
                                TSX SEPRNT:4
 06322 0 07400 4 06550
                                                              DECREASE
                          RESET CLA COMMON+10
 06323 0 50000 0 00012
                                                                   INDEX
06324 0 40200 0 06327
                          INDEX SUB TWONE
                                                                   REGISTERS
                                STO COMMON+10
 06325 0 60100 0 00012
                                                              END OF THE MAIN LINE
                                TRA MAIN
 06326 0 02000 0 06221
 06327 0 00001 0 00002
                                    2:0:1
                          TWONE
                                                              FOR SINGULAR
                                LXA THREEA,4
 06330 0 53400 4 01303
                                                                   MATRIX
 06331 0 50000 0 06005
                                CLA LINE3+2
```

06332	0	60100	4	06707		STO	D+12,4	INSERT
06333	2	00001	4	06332			TWONE+3.4.1	BLANK
06334	0	02000	0	06316			PIKER+3	NUMBER
06335	0	00000	0	00007	SEVEN		7	HOUSER
06336	-0	63400	4	00003	DPFLP	SXD	COMMON+3+4	
06337	Ģ	60100	0	00004			COMMON+4	
06340	0	16200	0	06344			DPFLP+6	
06341	-0	12000	0	06363			SINOK	
06342	0	76000	0	00142		SLN		
06343	0	02000	0	06346		TRA	DPFLP+8	
06344	0	12000	0	06363		TPL	SINOK	
06345				00000		LRS		
06346	- ()	32000	0	01316		ANA	MASKCH	
06347	0	40200	0	01332		SUB	BORROW	
06350	- ∩	60000	0	00005		STQ	COMMON+5	
06351	-0	30000	Ü	00005		UFA	COMMON+5	
06352	0	16100	0	06353		TOO	OOFF	
06353	0	60100	0	00005	COFF	STO	COMMON+5	
06354	0	50200	0	01301			ONEADR	
06355	0	40100	0	00004		ADM	COMMON+4	•
.06356	0	30000	0	00005			COMMON+5	
06357	-0	76000	0	00142		SLT		
06360	-0	76000	0	00003		55M		
06361	O	76500	0	00000		LRS		
06362	0	16100	0	06421		TQQ	ZERO	
06363	C	60100	0	00004	SINOK	STO	COMMON+4	
06364	Ò	76300	0	00010		LLS		
06365	-0	50000	0	00004			COMMON+4	•
06366	-0	32000	0	01316			MASKCH	
06367	0	77100	0	00033		ARS		
06370	0	73400	4	00016	FORTM			
06371	0	62100	0	06377			SHIFT	
06372	0	50000	0	00004			COMMON+4	
06373	~ 0	32000	0	01317			MASKER	
06374	- 3	00233	4	06376		TXL	SHIFT-1,4,155	
06375	-0	53400	4	06374			SHIFT-3,4	
06376	0	14000	0	06377			SHIFT	
06377	O	76300	4	00000	SHIFT			
06400	0	76500	4	00233			155,4	
06401	0	14000	Ō	06410			MAXIM	
06402				00003		SSP	· -	
06403				06427		CAS	10708	
06404	0	02000	0	06410		TRA	MAXIM	
06405	0	40200	0	01301	1	SUB	ONEADR	
06406	0	76300	0	00000		LLS		
06407	0	02000	0	06443			DPFXP+2	EXIT TO DPEXPT
06410				06427	MAXIM			EAT TO DETAIL
06411	0	02000	0	06405			MAXIM-3	CONSTANTS
06412				06425	DIVBY3		10703+1	CORDINATO
		22000					10703	
06414							COMMON	
06415		50000					COMMON	
06416		40000					5TOM4	
06417		61100					COMMON	
06420		02000				TRA		
		7. 3 - 4 7. 1	•			* 1777	± 17	

```
06421 0 50000 0 01300
                         ZERO CLA NOUGHT
06422 0 56000 0 01300
                               LDQ NOUGHT
06423 0 02000 0 06363
                               TRA SINOK
06424 +000000001750
                         10T03 DEC 1000835
06425 +000000000764
                               DEC 500835
06426 +000101422335
                         5TOM4 DEC .000580
96427 +000575360409
                         10T08 DFC 100000000835
06430 +000276570200
                               DEC 50000000B35
06431 +0000000000253
                         5TOM9 DEC .00000000580
06432 +0000000000040
                         MINUS OCT 000000000040
06433 +0000000000033
                         POINT OCT 000000000033
06434 +0000000000060
                         BLANK OCT 000000000060
06435 -200000000000
                         ABLNK OCT -20000000000
06436 -206000000000
                         BBLNK OCT -20600000000
06437 0 00000 0 00066
                         54ADR
                                   54
06440 0 00000 0 00014
                        TWELVE
                                   12
06441 -0 63400 4 00003
                         DPFXP SXD COMMON+3:4
                                                              ASSUMES 25.45 NUMBER
06442 0 76500 0 00012
                               LRS 10
                                                              IN AC. MQ WITH LIKE SIGNS
06443 -0 60000 0 00002
                               STO COMMON+2
                                                              PQ CLEAR
06444 0 76000 0 00003
                               SSP
06445 0 56000 0 06430
                               LDQ 10T08+1
06446 0 22000 0 06427
                               DVH 10T08
06447 -0 60000 0 00000
                               STQ COMMON
06450 0 50000 0 00000
                               CLA COMMON
06451 0 40000 0 06431
                               ADD 5TOM9
06452 0 60100 0 00000
                               STO COMMON
06453 0 53400 2 06730
                               LXA EIGHT 2
06454 0 53400 1 01301
                               LXA ONEADR:1
06455 0 07400 4 06500
                               TSX CONVE,4
96456 2 00005 4 06457
                               TIX DPFXP+14,4,5
06457 -0 63400 4 01377
                               SXD CBOXTW,4
06460 0 50000 0 06433
                               CLA POINT
06461 -0 53400 4 06727
                               LXD BBOX , 4
06462 0 02000 0 06514
                               TRA KEVIN
06463 0 50000 0 00002
                               CLA COMMON+2
06464 0 10000 0 06466
                               TZE ZEROF
06465 0 52400 1 01300
                               LXA NOUGHT 1
06466 0 60200 0 00000
                         ZEROF SLW COMMON
06467 0 53400 2 06730
                               LXA EIGHT 12
06470 0 07400 4 06500
                               TSX CONVE,4
06471 0 50000 0 00003
                               CLA COMMON+3
                                                             SET EXIT FROM
06472 0 62200 0 01377
                               STD CBOXTW
                                                             DPFXP AND CONVE
06473 -0 53400 4 06727
                               LXD BBOX,4
06474 0 50000 0 00002
                               CLA COMMON+2
06475 0 12000 0 06513
                               TPL KEVIN-1
06476 0 50000 0 06432
                               CLA MINUS
06477 0 02000 0 06514
                               TRA KEVIN
06500 -0 63400 4 01377
                         CONVE SXD CBOXTW.4
                                                             PRESENT XA AND XB AND
06501 -0 53400 4 06727
                         RSION LXD BBOX,4
                                                                  PUT WORD TO BE
06502 0 56000 0 01300
                               LDQ NOUGHT
                                                             CONVERTED IN COMMON
06503 0 50000 0 00000
                               CLA COMMON
                                                             PROGRAMMED
06504 0 76500 0 00002
                               LRS 2
                                                                  MULTIPLICATION
06505 0 40000 0 00000
                               ADD COMMON
                                                                  8Y 10 LEAVING
06506 0 76500 0 00040
                               LRS 32
                                                                  DECIMAL DIGIT IN
06507 +0 60000 0 00000
                               STO COMMON
                                                                  THE ACCUMULATOR
```

```
TEST ZERO CHARACTER
06510 0 10000 0 06512
                               TZE KEVIN-2
                                                                   SET SWITCH TO STORE
                               LXA NOUGHT 1
06511 0 53400 1 01300
                                                                   ZERO FROM NOW ON
                               TRA KEVIN:1
06512 0 02000 1 06514
                                                              STORE BLANK CHARACTER
06513 0 50000 0 06434
                               CLA BLANK
                                                              POSITION CHARACTER
                         KEVIN ALS 32,4
06514 0 76700 4 00040
                                                              OR IT INTO PRINT LINE
06515 -0 60200 0 00000
                               ORS
                                                              KEEP
06516 1 00006 4 06517
                               TXI KEVIN+3,4,6
                                                                   THE
                               TXL KEVIN+8,4,32
06517 -3 00040 4 06524
                                                                   PRINT
                               CLA KEVIN+1
06520 0 50000 0 06515
                                                                   LINE
                               SUB ONEADR
06521 0 40200 0 01301
                                                                   MOVING
                               STA KEVIN+1
06522 0 62100 0 06515
                                                                   ALONG
06523 0 53400 4 06504
                               LXA CONVE+4,4
                                                              TEST FOR END OF WORD
                               TIX CONVE+2,2,1
06524 2 00001 2 06502
                                                              SAVE LINE POSITION
                               SXD BBOX 4
06525 -0 63400 4 06727
                                                              PREPARE TO BAIL OUT
                               LXD CBOXTW,4
06526 +0 53400 4 01377
                                                                   JUMP
                               TRA 1,4
06527 0 02000 4 00001
                                                              WRITE
06530 0 76600 0 00206
                         WTBCD WTD 6
                                                                   CYCLE
                               LXA SIX.3
06531 0 53400 3 06723
                                                                   PRINTING
06532 0 70000 1 06701
                               CPY D+6.1
                                                                   ON TAPE
                               TIX NTBCD+2,1,1
06533 2 00001 1 06532
                                                                   51X
                               CPY 0+38:2
06534 0 70000 2 06741
                                                                   AND
                               TIX WTBCD+4,2,1
06535 2 00001 2 06534
                                                                   RETURN
06536 0 02000 4 00001
                               TRA 1.4
                                                              SAVE RETURN ADDRESS
                         RITEB SXD TWELVE,4
06537 -0 63400 4 06440
                                                              STORE BLANK
06540 -0 50000 0 06005
                               CAL LINE3+2
                                                                   CHARACTERS
                               LXA SIX.1
06541 0 53400 1 06723
                                                                   INPRINT
                               SLW D+6+1
06542 0 60200 1 06701
                                                                   LINE
06543 0 60200 1 06741
                               SLM D+38.1
                                                                   THEN
06544 2 00001 1 06542
                               TIX RITEB+3.1.1
                                TSX SEPRNT 4
06545 0 07400 4 06550
                                                              PREPARE TO BAIL OUT
                               LXD TWELVE , 4
06546 -0 53400 4 06440
                                                                   JUMP
                               TRA 1.4
06547 0 02000 4 00001
                        SEPRNT SXD SAVEME + 4
06550 -0 63400 4 06603
06551 -0 53400 4 06437
                               LXD 54ADR 14
                               TIX SEPRNT+9,4,1
06552 2 00001 4 06561
                                                              PUT A ONE
                               CLA ONEADR
06553 0 50000 0 01301
                               LDQ D
                                                                   IN FIRST
06554 0 56000 0 06673
                                                                   WORD TO
                                RQL 6
06555 -0 77300 0 00006
                                                                   SKIP TO
06556 +0 76300 0 00036
                               LGL 30
                                                                   NEW PAGE
06557 0 60200 0 06673
                                SLW D
                                LXA 54ADR • 4
06560 0 53400 4 06437
                                SXD 54ADR +4
06561 -0 63400 4 06437
                                CLA PRODDE
06562 0 50000 0 01374
                                ADD ONEADR
06563 0 40000 0 01301
                                                      CYCLE PRINT
06564 0 10000 0 06575
                                TZE TEST4
                                ADD ONEADR
06565 0 40000 0 01301
                                                      NEW SOLUTION IN PLP
                                TZE TEST4
06566 0 10000 0 06575
                                SWT 3
06567 0 76000 0 00163
06570 0 02000 0 06572
                                TRA ON
                                                      WRITE REMOTE PRINTER
                                TSX WTBCD,4
06571 0 07400 4 06530
                                                      WRITE DIRECT PRINTER
06572 0 07400 4 06604
                         ON
                                TSX BCD,4
                               LXD SAVEME . 4
06573 -0 53400 4 06603
                          EXIT
                                TRA 1,4
06574 0 02000 4 00001
                          TEST4 SWT 4
06575 0 76000 0 00164
                                                      WRITE DIRECT PRINTER
06576 0 02000 0 06572
                                TRA ON
```

```
WRITE REMOTE PRINTER
06577 0 07400 4 06530
                               TSX WTBCD,4
06600 0 76000 0 00165
                                SWT 5
06601 0 02000 0 06573
                               TRA EXIT
06602 0 02000 0 06572
                               TRA ON
                        SAVEME
                                   D+3
06603 0 00000 0 06676
06604 -0 63400 4 01377
                         BCD
                               SXD CBOXTW.4
                               WPR
06605 0 76600 0 00361
                                                              TEST FOR ONE
06606 0 50000 0 06673
                               CLA D
06607 -0 12000 0 06613
                               TMI BCD+7
                                                                   AND
06610 0 76000 0 00361
                                SPR 1
                                                                   SKIP TO
06611 0 36100 0 06732
                                ACL BLNKR
                                                                   NEWPAGE
06612 0 60200 0 06673
                               SLW D
                                                              CHOOSE LEFT CARD IMAGE
                               LXA BCD+19+1
06613 0 53400 1 06627
                               LXA BCD+22:2
                                                              CLEAR
06614 0 53400 2 06632
                                                                   D+6
06615 0 76000 0 00000
                               CLM
                                                                   THRU
06616 0 60200 3 07022
                               SLW D+87.3
                                                                   D+22
06617 2 00001 2 06616
                               TIX REPET-5,2,1
                               CAL D+23
26620 -0 50000 0 06722
                                                              REFRESH
                                                                   COLUMN INDICATOR
                               SLW D+27
06621 0 60200 0 06726
                                                              BEGINNING
06622 0 53400 2 06723
                                LXA D+24.2
                                                                   OF PRELIMINARY
06623 0 56000 3 07001
                         REPET LDQ D+70.3
06624 -0 63400 2 06727
                                SXD BBOX + 2
                                                                   CARD IMAGE
                                                                   FORMATION
                                CLM
06625 0 76000 0 00000
                               LGL 2 ·
                                                              PLACE ZONE PART
06626 -0 76300 0 00002
                                                                   IN INDEX B
06627 0 73400 2 00100
                               PAX 64.2
06630 0 76000 0 00000
                                                              CLEAR ACCUMULATOR
                                CLM
                                                              PLACE NUMERICAL PART
06631 -0 76300 0 00004
                                LGL 4
                                PAX 17:4
                                                                   ININDEX C
06632 0 73400 4 00021
                                                              FORM PRESENT
06633 -0 50000 0 06726
                                CAL D+27
06634 -0 60200 3 07021
                                ORS D+86,3
                                                                   COLUMN OF
                                                                   CARD IMAGE
06635 +0 60200 5 07015
                                ORS D+82.5
                                                              MOVE TO
06636 0 77100 0 00001
                                ARS 1
                                                                   NEXT COLUMN
06637 0 60200 0 06726
                                SLW D+27
                                                              CLOSE LOOP IF WORD
06640 -0 32000 0 06725
                                ANA D+26
                                                                   IS NOT FINISHED
06641 -0 10000 0 06625
                                TNZ REPET+2
                                                              MOVE TO NEXT WORD AND
06642 -0 53400 2 06727
                               LXD BBOX 2
                                                                   TEST END OF HALF IMAGE
06643 2 00001 2 06623
                                TIX REPET,2,1
06644 0 53400 2 01302
                         ABCD LXA TWOADR + 2
                                                              OR
                               CAL D+72.3
                                                                   8-4 WORD
06645 +0 50000 3 07003
06646 -0 60200 1 07005
                                ORS D+74+1
                                                                   AND 8-3 WORD
06647 -0 60200 3 07013
                                                                   INTO
                                ORS D+80+3
                                                                   8.4. AND 3 WORDS
06650 2 00001 2 06645
                                TIX ABCD+1,2,1
                                                                   OBTAIN
06651 -0 50000 1 07015
                                CAL D+82.1
06652 0 76000 0 00006
                                COM
                                                                   THE
                                                                   O S ROW
06653 0 32000 1 07016
                                ANS D+83.1
                                                                   OF
06654 -0 50000 1 07015
                                CAL D+82.1
                                                                   THE
06655 -0 32000 1 07021
                                ANA D+86+1
                                                                   CARD
06656 -0 50100 1 07016
                                ORA D+83,1
06657 0 60200 1 07015
                                SLW D+82 1
                                                                   IMAGE
06660 -0 50000 1 07017
                                CAL D+84.1
                                                              OBTAIN
                                SLW D+83.1
06661 0 60200 1 07016
                                                                   AND Y
06662 ~0 50000 1 07020
                                CAL D+85,1
06663 0 60200 1 07017
                                5LW D+84.1
                                                                   ROWS
                                                              GO BACK FOR RIGHT HALF IMAGE
06664 2 00040 1 06614
                                TIX BCD+8,1,32
06665 0 53400 1 06440
                                LXA TWELVE•1
                                                              COPY
```

```
LOOP
                         COPY CPY D+21+1
06666 0 70000 1 06720
                                                                  FOR
                               CPY D+53.1
06667 0 70000 1 06760
                                                                  PRINTING
                               TIX COPY,1,1
06670 2 00001 1 06666
                                                              PREPARE TO BAIL OUT
                               LXD CBOXTW,4
06671 -0 53400 4 01377
                                                                  JUMP
                               TRA 1,4
06672 0 02000 4 00001
                                                              SPACE FOR LEFT IMAGE
                               BSS 23
                 06673
                                                              LOC OF MINUS ZERO
                               OCT -000000000000
06722 -1000000000000
                                                             LOC OF 6
                               OCT 0000000000006
06723 +00000000000006
                         SIX
                                                             LOC OF 10
06724 0 00012 0 06674
                         TEN
                                   D+1(0,10
                                                     MASK FOR COL INDICATOR
                               OCT 373737373737
06725 +37373737373737
06726 0 00000 0 00000
                                   D+5
                         BBOX
06727 0 00000 0 06700
                                                              LOC OF 8
06730 0 00024 0 00010
                         EIGHT
                                   8,0,20
                                                              TWO BLANKS ONLY
                         28LNK OCT 000000006060
06731 +000000006060
                         BLNKR OCT -170000000000
06732 -1700000000000
                                                              SPACE FOR RIGHT IMAGE
                               BSS 23
                 06733
06762 0 00000 0 00000
                         LIMIT
                               ORG 488
                 00750
                        PREF12 RDS 194
00750 0 76200 0 00302
                               LXA PREF12+5+4
00751 0 53400 4 00755
                               CPY LIMIT.4
00752 0 70000 4 06762
                               TIX PREF12+2,4,1
00753 2 00001 4 00752
                               TRA START
00754 0 02000 0 06017
                                   LIMIT-3000
00755 0 00000 0 01072
                               ORG SRORIG
                 00750
                               HED
                 00750 M
                         RERYT CLA STAGES
00750 0 50000 0 01351
                               TZE FILE+2
00751 0 10000 0 00767
                               BST. 2
00752 0 76400 0 00202
00753 0 76400 0 00202
                               BST 2
                          ADVNC RTB 2
00754 0 76200 0 00222
                                CPY COMMON
00755 0 70000 0 00000
                                TRA ADVNC
00756 0 02000 0 00754
                                                        POSITION TAPE FOR NEW RECORD
                                BST 2
00757 0 76400 0 00202
                                BST 2
00760 0 76400 0 00202
                                RTB 2
00761 0 76200 0 00222
                                10D
00762 0 76600 0 00333
00763 0 77100 0 00355
                                ARS 237
                                ARS 237
00764 0 77100 0 00355
                          FILE RTT
00765 -0 76000 0 00012
                                                        TAPE CHECK WHEN ADVANCING TAPE 2
                                HPR 496
00766 0 42000 0 00760
                                CLA DR3LIM
00767 0 50000 0 01352
                                ADD ONEADR
00770 0 40000 0 01301
                                STO COMMON
00771 0 60100 0 00000
                                PAX 0,7
00772 0 73400 7 00000
                                                      CHANGE FOR 8192 MEMORY
                          SETUP ADD TORIGN
00773 0 40000 0 01342
                                STA DRMRD
00774 0 62100 0 00776
                                RDR 3
00775 0 76200 0 00303
00776 0 70000 1 00000
                          DRMRD CPY 0.1
                                TIX DRMRD .1 .1
00777 2 00001 1 00776
                          STADR STA CPY2
01000 0 62100 0 91007
                                STA BTAPE
01001 0 62100 0 01035
                                SUB ONEADR
01002 0 40200 0 01301
                                STA LAST
01003 0 62100 0 01005
                                CLA MOUGHT
01004 0 50000 0 01300
```

```
CLEAR COUNT AT END OF RECORD
01005 0 62100 0 00000
                         LAST STA
                               WTB 2
01006 0 76600 0 00222
                              CPY 0.2
01007 0 70000 2 00000
01010 2 00001 2 01007
                               TIX CPY2,2,1
                               WEF 2
01011 0 77000 0 00202
01012 -0 76000 0 00142
                               SLT 2
01013 0 02000 0 01015
                               TRA LOADA
01014 0 02000 0 01100
                               TRA ROLLQ
01015 0 53400 1 01302
                         LOADA LXA TWOADR,1
                               BST 2
01016 0 76400 0 00202
01017 0 76400 0 00202
                         RTRY
                               BST 2
                                                       NEW RECORD WILL NOT READ AFTER 4 TRIES
                               TNX FTAPE . 1 . 1
01020 -2 00001 1 01070
01021 0 53400 2 00000
                               LXA COMMON,2
01022 0 76200 0 00222
                               RTB 2
01023 0 70000 0 00002
                         CHKTP CPY COMMON+2
01024 0 02000 0 01023
                               TRA CHKTP
                                                     TAPE SHOULD NOT REACH EOF-761 STOP
01025 0 42000 0 00761
                               HPR 497
                               ARS 237
01026 0 77100 0 00355
01027 0 77100 0 00355
                               ARS 237
                               RTT
01030 -0 76000 0 00012
                               TRA RTRY
01031 0 02000 0 01017
                         RITER LXA TPALTR,2
01032 0 53400 2 01354
                               LXD TPALTR 1
01033 -0 53400 1 01354
01034 0 76600 1 00224
                               WTB 4.1
01035 0 70000 4 00000
                         BTAPE CPY 0.4
                               TIX STAPE . 4 . 1
01036 2 00001 4 01035
                               CLA STAGES
01037 0 50000 0 01351
                               TZF WEF
01040 0 10000 0 01074
                         NUREC LXA TWOADR • 4
01041 0 53400 4 01302
01042 0 02000 0 01045
                               TRA RD
01043 -2 00001 4 01072
                         AGAIN THX PTPNG . 4 . 1
01044 0 76400 2 00204
                               BST 4,2
01045 0 76200 2 00224
                               RTR 4.2
01046 0 50000 0 01342
                               CLA TORIGN
01047 0 62100 0 01051
                         NUADR STA ROBTP
01050 0 40000 0 01301
                               ADD ONEADR
                         RDBTP CPY
01051 0 70000 0 00000
                               TRA NUADR
01052 0 02000 0 01047
01053 0 02000 0 01074
                               TRA WEF
01054 0 77100 0 00355
                               ARS 237
                               ARS 237
01055 0 77100 0 00355
                               RTT
01056 -0 76000 0 00012
01057 0 02000 0 01043
                               TRA AGAIN
01060 0 50000 0 01051
                               CLA RDBTP
                         CONT
01061 0 62100 0 01065
                               STA WRBTP
                               SUB TORIGN
01062 0 40200 0 01342
01063 0 73400 4 00000
                               PAX 0.4
01064 0 76600 1 00224
                               WTB 4.1
                         WRBTP CPY 0.4
01065 0 70000 4 00000
01066 2 00001 4 01065
                               TIX WRBTP,4,1
01067 0 02000 0 01041
                               TRA NUREC
01070 0 76000 0 00142
                         FTAPE 5LN 2
                                                     LIGHT 2 FOR TAPE 2 ERROR
01071 0 02000 0 01032
                               TRA RITES
                                                       LIGHT 3 FOR TAPE 3 OR 4 ERROR
01072 0 76000 0 00143
                         BTPNG SLN 3
01073 0 02000 0 01060
                               TRA CONT
```

```
WEF 4.1
01074 0 77000 1 00204
                               REW 2
01075 0 77200 0 00202
                               REW 3
01076 0 77200 0 00203
                               REW 4
01077 0 77200 0 00204
                                                     ROTATE TAPE ALTERNATOR
                         ROLLO LDG TPALTR
01100 0 56000 0 01354
01101 -0 77300 0 00022
                               ROL 18
01102 -0 60000 0 01354
                               STO TPALTR
                               CLA STAGES
01103 0 50000 0 01351
                               ADD ONEADR
01104 0 40000 0 01301
                                                    MODIFY STAGE NUMBER
                               STO STAGES
01105 0 60100 0 01351
01106 0 76600 0 00341
                               WPU
                               SPU 1
01107 0 76000 0 00341
01110 0 76700 0 00033
                               ALS 27
                               STO COMMON
01111 0 60100 0 00000
01112 0 70000 0 00000
                               CPY COMMON
                               CLA NOUGHT
01113 0 50000 0 01300
01114 0 60100 0 01352
                               STO DR3LIM
                               CLA CONCD
01115 0 50000 0 01175
                               LRS
01116 0 76500 0 00000
                               TSX BPUNCH 4
01117 0 07400 4 01176
                               CLA 1MANDI
01120 0 50000 0 01334
                               ALS 18
01121 0 76700 0 00022
01122 0 40000 0 01337
                               ADD HORIGN
                               LRS
01123 0 76500 0 00000
                               TSX BPUNCH:4
01124 0 07400 4 01176
                               CLA VORIGN
01125 0 50000 0 01340
                               ADD 2MAN2D
01126 0 40000 0 01336
                               LR5
01127 0 76500 0 00000
                               TSX BPUNCH 4
01130 0 07400 4 01176
01131 -0 76000 0 00141
                               SLT 1
                               TRA FCHK
01132 0 02000 0 01154
                               SLN 1
01133 0 76000 0 00141
                                                       BLANK CARD
                               WPU
01134 0 76600 0 00341
                               CLA WORIGN
01135 0 50000 0 01341
01136 0 40000 0 01336
                               ADD 2MAN2D
01137 0 76500 0 00000
                               LRS
                               TSX BPUNCH,4
01140 0 07400 4 01176
                               LXA 2MAND2+4
01141 0 53400 4 01335
                               CLA TORIGN
01142 0 50000 0 01342
                               ADD 2MAND2
01143 0 40000 0 01335
                               STA RDGAM
01144 0 62100 0 01146
01145 0 76200 0 00304
                               RDR 4
                         RDGAM CPY 0.4
01146 0 70000 4 00000
                               TIX RDGAM.4.1
01147 2 00001 4 01146
                               CLA TORIGN
01150 0 50000 0 01342
                               ADD 2MAN2D
01151 0 40000 0 01336
01152 0 76500 0 00000
                               LRS
                               TSX BPUNCH,4
01153 0 07400 4 01176
                               CLA FILE+1
01154 0 50000 0 00766
                         FCHK
                               SLT 2
01155 - 0 76000 0 00142
01156 0 02000 0 01161
                               TRA BCHK
01157 0 40000 0 01302
                               ADD TWOADR
                               SLN 4
01160 0 76000 0 00144
                         BCHK
                               SLT 3
01161 -0 76000 0 00143
                               TRA BCHK+5
01162 0 02000 0 01166
```

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01163. 0 76000 0 00144
                               SLN 4
01164 0 40000 0 01174
                               ADD ERROR+3
01165 0 40200 0 01354
                               SUB TPALTR
01166 -0 76000 0 00144
                               SLT 4
01167 0 02000 0 01172
                               TRA ERROR+1
                               STA ERROR
01170 0 62100 0 01171
01171 0 42000 0 00000
                         ERROR HPR
                                                       762 TO 766 ERROR STOP
01172 -0 53400 4 01376
                               LXD CBOXON+4
01173 0 02000 4 00001
                               TRA 1,4
01174 0 00001 0 00004
                               HTR 4,0,1
                         CONCD PZE 1MAND1+0+24
01175 0 00030 0 01334
01176 -0 63400 4 01377
                        BPUNCH SXD CBOXTW+4
01177 0 60100 0 00000
                               STO COMMON
01200 -0 73400 3 00026
                               PDX 22.3
01201 0 77100 0 00022
                               ARS 18
01202 0 40000 0 00000
                               ADD COMMON
01203 0 62100 0 01217
                               STA BPUNCH+17
                               STA BPUNCH+24
01204 0 62100 0 01226
01205 0 16200 0 01210
                               TQP BPUNCH+10
                               LR5
01206 0 76500 0 00000
                               STO COMMON
01207 -0 60000 0 00000
01210 0 53400 4 01200
                               LXA BPUNCH+2+4
01211 0 76600 0 00341
                               WRS 225
01212 -2 00026 1 01215
                               TNX BPUNCH+15,1,22
01213 -0 63400 4 00000
                               SXD COMMON 4
01214 1 00026 1 01216
                               TXI BPUNCH+16,1,22
01215 -0 63400 1 00000
                               SXD COMMON 1
01216 -0 50000 0 00000
                               CAL COMMON
01217 0 36100 1 00000
                               ACL 0.1
01220 -2 00001 1 01222
                               TNX BPUNCH+20:1:1
01221 2 00001 4 01217
                               TIX BPUNCH+17,4,1
01222 0 60200 0 00001
                               SLW COMMON+1
01223 -0 53400 4 00000
                               LXD COMMON: 4
01224 0 70000 0 00000
                               CPY COMMON
01225 0 70000 0 00001
                               CPY COMMON+1
01226 0 70000 2 00000
                               CPY 0:2
                               TNX BPUNCH+31.2.1
01227 -2 00001 2 01235
01230 2 00001 4 01226
                               TIX BPUNCH+24,4,1
01231 0 50000 0 00000
                               CLA COMMON
01232 0 40200 0 01200
                               SUB BPUNCH+2
01233 0 62100 0 00000
                               STA COMMON
01234 0 02000 0 01210
                               TRA BPUNCH+10
01235 -0 53400 4 01377
                               LXD CBOXTW.4
01236 0 02000 4 00001
                               TRA 1,4
                 00773
                               ORG SETUP
00773 0 40000 0 01333
                                                     MODIFY RERYT FOR 8192 MEMORY
                               ADD SPAREF
00774 0 02000 0 01000
                               TRA STADR
                 00020
                               ORG MCRORG
                 00020
                               HED
00020 0 50000 0 01330
                        PREF19 CLA HDRORG
00021 0 40200 0 01327
                               SUB KDRORG
00022 0 40000 0 01334
                               ADD 1MAND1
00023 0 60100 0 01045
                               STO COUNT
                               CLA HORIGN
00024 0 50000 0 01337
00025 0 40000 0 01334
                               ADD 1MAND1
```

```
00026 0 62100 0 00763
                              STA KHSUM
                               STA DRM2K
00027 0 62100 0 00753
00030 0 50000 0 01340
                               CLA VORIGN
                               ADD 2MAND2
00031 0 40000 0 01335
00032 0 62100 0 00765
                               STA KHSUM+2
00033 0 62100 0 90760
                               STA KHSUM-3
                               CLA WORIGN
00034 0 50000 0 01341
00035 0 40000 0 01335
                               ADD 2MAND2
00036 0 62100 0 01010
                               STA BTOW
00037 0 02000 4 00001
                               TRA 1,4
                               ORG SRORIG
                 00750
00750 0 76200 0 00301
                        PIKUP RDR 1
00751 0 53400 3 01045
                               LXA COUNT.3
                               LDA DRADR
00752 0 46000 0 00777
                        DRM2K CPY 0.2
00753 0 70000 2 00000
                              TIX DRM2K . 2 . 1
00754 2 00001 2 00753
                               RDR 1
00755 0 76200 0 00301
00756 0 46000 0 01331
                              LDA VDRORG
00757 0 53400 6 01335
                              LXA 2MAND2,6
00760 0 70000 4 00000
                              CPY 0.4
                              TIX DRM2K+5,4,1
00761 2 01001 4 00760
                              CLA NOUGHT
00762 0 50000 0 01300
                        KHSUM ACL 0,1
00763 0 36100 1 00000
00764 2 00001 1 00763
                              TIX KHSUM , 1 , 1
                               ACL 0.2
00765 0 36100 2 00000
00766 2 00001 2 00765
                               TIX KHSUM+2,2,1
00767 0 60200 0 00000
                               SLW COMMON
                              CAL CBOXTW
00770 +0 50000 0 01377
00771 0 36100 0 01377
                               ACL CBOXTW
00772 0 60200 0 00001
                               SLW COMMON+1
00773 0 50000 0 00001
                               CLA COMMON+1
                               SUR COMMON
00774 0 40200 0 00000
00775 0 10000 0 01000
                               TZE DRADR+1
00776 0 42000 7 17777
                               HPR 8191.7
00777 0 00004 0.00750
                         DRADR PZE 488.0.4
                               LXD DRADR 1
01000 -0 53400 1 00777
01001 0 77200 1 00206
                               REW 6.1
                               TIX DRADR+2.1.1
01002 2 00001 1 01001
01003 0 76000 0 00162
                               SWT 2
                               TRA MCRTRA
01004 0 02000 0 01357
01005 0 76200 0 00304
                               RDR 4
01006 0 53400 1 01335
                               LXA 2MAND2,1
01007 0 46000 0 01324
                               LDA BDRORG
                              CPY 0:1
01010 0 70000 1 00000
01011 2 00001 1 01010
                               TIX BTOW,1,1
01012 0 76200 0 00321
                         CDRDR RCD
                               CPY COMMON
01013 0 70000 0 00000
                               LLS 17
01014 0 76300 0 00021
01015 0 73400 2 00000
                               PAX 0.2
01016 0 40000 0 00000
                               ADD COMMON
                               CPY COMMON+1
01017 0 70000 0 00001
01020 0 62100 0 01043
                               STA TRANS
                               TXL MR2DR +2
01021 -3 00000 2 01036
01022 0 62100 0 01025
                               STA RECVR
01023 0 62100 0 01026
                               STA RECVR+1
```

```
01024 -0 50000 0 00000
                              CAL COMMON
01025 0 70000 2 00000
                        RECVR CPY 0,2
01026 0 36100 2 00000
                              ACL 0,2
01027 2 00001 2 01025
                              TIX RECVR,2,1
01030 0 60200 0 00000
                              SLW COMMON
01031 0 50000 0 00000
                              CLA COMMON
01032 0 40200 0 00001
                              SUB COMMON+1
01033 0 10000 0 01012
                              TZE CDRDR
01034 0 42000 0 00600
                              HPR 384
                                                    600 ERROR STOP
01035 0 02000 0 01012
                              TRA CDRDR
01036 0 76600 0 00301
                        MR2DR WDR 1
01037 -0 53400 1 01044
                              LXD MCRCT.1
01040 0 46000 0 01044
                              LDA MCRCT
01041 0 70000 1 00607
                              CPY DPFADD:1
01042 2 00001 1 01041
                              TIX MR2DR+3,1,1
01043 0 00000 0 00000
                        TRANS HTR
                                                    HALT READY TO START MCR
01044 0 00567 0 00013
                        MCRCT PZE 11,0,375
01045 0 00000 0 00000
                        COUNT PZE
                00000
                              END
```

```
ZTABLE 00747,00747
                               ORG MCRORG
                 00020
                 00020
                               HED
00020 0 50000 0 01341 PREF10 CLA WORIGN
                               ADD 2MAND2
00021 0 40000 0 01335
00022 0 62100 0 00767
                               STA FULEL
                               ADD ONEADR
00023 0 40000 0 01301
                               STA FULEL+5
00024 0 62100 0 00774
                               TRA 1.4
00025 0 02000 4 00001
                               ORG SRORIG
                 00750
00750 0 50000 0 01352
                         YTOXM CLA DR3LIM
00751 0 40000 0 01333
                               ADD SPAREF
                                                     LOC 5120
00752 0 62100 0 01016
                               STA OLDLM
00753 0 62100 0 00766
                               STA FULEL-1
00754 0 40000 0 01301
                               ADD ONEADR
00755 0 62100 0 01023
                               STA SINRC-2
00756 0 40000 0 01301
                               ADD ONEADR
00757 0 62100 0 01025
                               STA SINRC
00760 0 76000 0 00006
                               COM
                               PAX 0.2
00761 0 73400 2 00000
00762 0 53400 1 01335
                               LXA 2MAND2.1
00763 0 53400 4 01300
                               LXA NOUGHT +4
00764 0 50000 0 01352
                               CLA DR3LIM
00765 -0 10000 0 00767
                               TN7 FULEL
00766 0 60100 0 00000
                               STO
00767 0 50000 1 00000
                         FULEL CLA 0.1
                                                     W/0+2M+2
                               TNZ FULEL+4
00770 -0 10000 0 00773
                               TNX HEDNG,1,2
00771 -2 00002 1 01004
00772 1 00001 4 00767
                               TXI FULEL,4,1
00773 0 60100 2 00000
                               STO 0.2
                                                     W/0+2M+3
00774 -0 50000 1 00000
                               CAL 0,1
00775 -0 32000 0 01317
                               ANA MASKER
                               SLW COMMON+1
00776 0 60200 0 00001
00777 +0 75400 4 00000
                               PXD 0.4
01000 0 76700 0 00011
                               ALS 9
01001 -0 50100 0 00001
                               ORA COMMON+1
01002 0 60200 2 00001
                               SLW 1.2
01003 2 00002 2 00771
                               TIX FULEL+2,2,2
01004 0 53400 4 01311
                         HEDNG LXA INFINY,4
01005 -0 63400 2 01006
                               SXD HEDNG+2,2
01006 2 00000 4 01007
                               TIX HEDNG+3,4
01007 0 53400 1 01025
                               LXA SINRC.1
01010 -0 63400 1 01011
                               SXD HEDNG+5.1
01011 2 00000 4 01012
                               TIX HEDNG+6.4
01012 1 00003 4 01013
                               TXI HEDNG+7,4,3
01013 -0 75400 4 00000
                               PXD 0,4
01014 0 60100 2 00000
                               STO 0.2
                                                     WORD COUNT OF RECORD
                               ARS 18
01015 0 77100 0 00022
01016 0 62100 0 00000
                         OLDLM STA
                               ADD DR3LIM
01017 0 40000 0 01352
                               STO DR3LIM
01020 0 60100 0 01352
01021 0 50000 0 01350
                               CLA ITERNO
01022 0 40000 0 01360
                               ADD INDEXR
01023 0 60100 0 00000
                               STO
```

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CLA INDEXS 01024 0 50000 0 01361 01025 0 60100 0 00000 SINRC STO 01026 -0 53400 4 01376 LXD CBOXON:4 TRA 1,4 01027 0 02000 4 00001 00000 END

```
ZTABLE 00747,00747
                               ORG MCRORG
                00020
                 00020 V
                               HED
                        COMMOR CLA LDATA
00020 0 50000 0 01301
                               TEX DISTRR.4
00021 0 07400 4 00700
00022 0 50000 0 01342
                         START CLA TORIGN
00023 0 40000 0 01335
                               ADD 2MAND2
00024 0 62100 0 00557
                               STA CK2
                               STA CPYP
00025 0 62100 0 00344
                               STA SNGA
00026 0 62100 0 00536
00027 0 50000 0 01337
                               CLA HORIGN
                               ADD 1MAND1
00030 0 40000 0 01334
                               STA PRMUT+1
00031 0 62100 0 00530
00032 0 62100 0 00037
                               STA SEEK
                               STA BASE
00033 0 62100 0 00364
                               STA SECHH
00034 0 62100 0 00441
                                                     SEARCH BASIS HEADINGS FOR NEGATIVE J
                               LYA NOUGHT +4
00035 0 53400 4 01300
                               LXA 1MAND1+2
00036 0 53400 2 01334
                                                     TALLY NUMBER OF ARRIES TO BE DONE
00037 0 50000 2 00000
                         SEEK CLA 0,2
                               TPL SEFK1
00040 0 12000 0 00042
                               TXI SFFK1,4,1
00041 1 00001 4 00042
                         SEEK1 TIX SEEK +2+1
90042 2 00001 2 00037
                               PYD 0.4
00043 -0 75400 4 00000
                               ARS 18
00044 0 77100 0 00022
                               STO ARBTRS
00045 0 60100 0 01344
                         NEWIT CLA DR3END
00046 0 50000 0 01353
                                                       TEST SWITCH 1
                               SWT 1
00047 0 76000 0 00161
                               TRA ENDST-3
00050 0 02000 0 00052
                               SCM
00051 -0 76000 0 00003
                               SUB DR3LIM
00052 0 40200 0 01352
                               TPL FAZ
00053 0 12000 0 00116
20054 0 76000 0 00000
                               CLM
                         FNDST SLW PRCODE
00055 0 60200 0 01374
00056 -0 50000 0 00604
                               CLA CHECK
                               TSX DISTRB,4
00057 0 07400 4 00700
00060 0 53400 1 01374
                               LXA PROODE 1
                                                     CODE 2.3.4
                               TXH PRT,1.1
00061 3 00001 1 00064
                                                      CODE 0.1
00062 0 07400 4 00555
                               TSX VERIF.4
                               TRA EOS
00063 0 02000 0 00075
                               CLA PRINT
00064 0 50000 0 00605
                               TSX DISTRR,4
00065 0 07400 4 00700
                               LXA PRODE • 4
00066 0 53400 4 01374
                                                      OPTIMAL SOLUTION
00067 3 00003 4 00075
                               TXH E05,4,3
                                                      FEASIBLE SOLUTION
                               TYH FESLN.4.2
 00070. 3 00002 4 00407
                                                      NO FEASIBLE SOLUTION
                                TXH NFFSL,4,1
 00071 3 00001 4 00412
                                                      FND OF STAGE
                                TYL FOS,4,0
00072 -3 00000 4 00075
00073 0 50000 0 00571
                                CLA MARK
                                                      NO ERROP AT PHASE ONE
                                TPL FA7
 00074 0 12000 0 00116
                               CLA DR3LIM
 00075 0 50000 0 01352
                                TZE CECDE
 00076 0 10000 0 00101
                                CLA DERYT
 00077 0 50000 0 00606
                                TSX DISTRR.4
 00100 0 07400 4 00700
                          CECDE LXA PROODE.1
00101 0 53400 1 01374
                                                      OPTIMAL SOLUTION
                                TYH FNDPR.1.3
 00102 3 00003 1 00337
```

```
00103 3 00000 1 00115
                               TXH P2 . 1
00104 0 50000 0 00571
                               CLA MARK
00105 0 12000 0 00107
                               TPL CF1
                                                     ERROR AT END OF STAGE
00106 0 42000 0 00070
                               HPR 56
                               CHT 1
                                                     TEST SWITCH 1
00107 0 76000 0 00161
00110 0 02000 0 00116
                               TRA FAZ
00111 0 50000 0 01302
                               CLA STSOL
                                                     STORE SOLUTION BEFORE STOPPING
00112 0 07400 4 00700
                               TSX DISTRB,4
                               HPR
                                                     7FRO HALT
00113 0 42000 0 00000
                         WHOA
00114 0 02000 0 00116
                               TRA FAT
                                                     ERROR AT END OF PHASE ONE
00115 0 42000 0 00071
                               HPR 57
00116 0 50000 0 01343
                               CLA FAZTYP
00117 0 10000 0 00141
                               TZE REGCY
00120 0 50000 0 00573
                               CLA TOLER
00121 0 40000 0 01372
                               ADD HIMAXV
00122 -0 12000 0 00141
                               TMI BEGCY
                               CLA FAZNUM
00123 0 50000 0 01345
                               TZF ENDPR
                                                     OCCURS 2ND TIME WHEN PHASE 1 IS LAST PHASE
00124 0 10000 0 00337
                               SUB ONEADR
00125 0 40200 0 01301
00126 0 60100 0 01345
                               STO FAZNUM
00127 0 10000 0 00137
                               TTE STP4
                               CLA FATTYP
00130 0 50000 0 01343
00131 0 40200 0 01301
                               SUB ONFADR
00132 0 60100 0 01343
                               STO FAZTYP
00133 0 50000 0 01347
                               CLA FEASYX
                               SUB TWOADR
00134 0 40200 0 01302
00135 0 60100 0 01347
                               STO FEASYX
00136 0 07400 4 00541
                               TSX ADJST.4
00137 0 50000 0 01301
                         STP4 CLA ONFADR
00140 0 02000 0 00055
                               TRA FNDST
00141 0 50000 0 00572
                         BEGCY CLA RTURN
                               STA MCRTRA
00142 0 62100 0 01357
00143 0 50000 0 01302
                               CLA STSOL
00144 0 07400 4 00700
                               TSX DISTRB.4
00145 0 50000 0 01344
                               CLA ARBTRS
00146 -0 10000 0 00440
                               TNZ SURCH
00147 0 50000 0 01303
                               CLA FORMC
00150 0 07400 4 00700
                               TSY DISTRB.4
00151 0 50000 0 01375
                               CLA STATUS
00152 0 40100 0 01355
                               ADM SCALHI
00153 0 40100 0 01356
                               ADM SCALLO
00154 -0 10000 0 00157
                               TNZ REWT2
                                                       FFASIBLE SOLM ZERO SCALING
00155 0 50000 0 01303
                               CLA THREEA
                               TRA ENDST
00156 0 02000 0 00055
00157 0 77200 0 00222
                         REVITO REW 2
00160 0 50000 0 00576
                               CLA BTRAN
00161 0 07400 4 00700
                               TSY DISTRB,4
00162 0 76600 0 00304
                               WDR 4
00163 0 50000 0 01341
                               CLA WORIGN
                               ADD 2MAND2
00164 0 40000 0 01335
00165 0 62100 0 00170
                               STA STORP
00166 0 53400 1 01335
                               LXA 2MAND2.1
00167 0 46000 0 01325
                               LDA PDRORG
                         STORP CPV 0.1
00170 0 70000 1 00000
                               TIX STORP,1,1
00171 2 00001 1 00170
```

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CLA STATUS
00172 0 50000 0 01375
                               THY NODCK
00173 -0 10000 0 00176
                               SHT 2
00174 0 76000 0 00162
                               TRA NODCK+1
00175 0 02000 0 00177
                         NODCK SLN ? -
00176 0 76000 0 00142
                               CLA PRICE
00177 0 50000 0 01304
                               TSX DISTRB,4
00200 0 07400 4 00700
                               CLE
00201 0 76000 0 00140
                               CLA INDEXS
00202 0 50000 0 01361
                               THY TONEM
00203 -0 10000 0 00213
00204 0 50000 0 01343
                               CLA FAZTYP
                               THE NOSLN
00205 -0 10000 0 00210
                               CLA STATUS
00206 0 50000 0 01375
                               TZE OPT
00207 0 10000 0 00211
                                                     PRINT CODE FOUALS
                         NOSLN CLS TWOADR
00210 0 50200 0 01302
                                                     2 FOR NOSLN AND 4 FOR OPTIMAL
                              ADD DEC4
00211 0 40000 0 00576
                         OPT
                               TRA ENDST
00212 0 02000 0 00055
                         TRNFM CLA WORIGN
00213 0 50000 0 01341
                               STO BORIGN
00214 0 60100 0 01365
                               CLA LDFLV
20215 0 50000 0 00601
                               TSX DISTRE,4
00216 0 07400 4 00700
00217 0 50000 0 00577
                               CLA FTRAN
                               TSX DISTRB,4
00220 0 07400 4 00700
                               CLA CHUZE
00221 0 50000 0 00600
                               TSX DISTRB,4
00222 0 07400 4 00700
                               CLA INDEXR
00223 0 50000 0 01360
                               TZE NOXR
00224 0 10000 0 00331
                         NUBAS CLA ELIMN
00225 0 50000 0 00602
                               TSX DISTRR.4
00226 0 07400 4 00700
                               CLA INDEXE
00227 0 50000 0 01360
                               ARS 19
00230 0 77100 0 00023
                               ADD HORIGN
00231 0 40000 0 91337
                               STA STORH
00232 0 62100 0 00234
                               CLA INDEXS
00233 0 50000 0 01361
                         STORH STO
00234 0 60100 0 00000
                         UPITH CLA ITERNO
00235 0 50000 0 01350
                               ADD ONFADR
00236 0 40000 0 01301
                               STO ITERNO
00237 0 60100 0 01350
                               CLA PRICEX
00240 0 50000 0 01346
                               ADD VORIGN
00241 0 40000 0 01340
00242 0 62100 0 00260
                               STA T4
00243 0 40000 0 01301
                               ADD ONFADR
                               STA CMPLO+1
 00244 0 62100 0 00270
                               CLA APRITES
 00245 0 50000 0 01344
00246 0 10000 0 00252
                                TZF TUPDN-2
                                SUR ONEADR
 00247 0 40200 0 01301
                                STO ARBTRS
 00250 0 60100 0 01344
                                TRA NUMAX
 00251 0 02000 0 00277
                                CLA STATUS
 00252 0 50000 0 01375
                               TN7 NUMAX
 00253 -0 10000 0 00277
                                                      TEST FOR SENSE OF MONOTONICITY
                          TUPDN CLA SCALHI
 00254 0 50000 0 01355
                                TMI TUPDN+3
 00255 -0 12000 0 00257
 00256 0 76000 0 00144
                                SLN 4
                                CLA HIMAXV
 00257 0 50000 0 01372
                                CIIR
 00260 0 40200 0 00000
```

```
00261 0 10000 0 00267
                               TTE CMPLO
00262 -0 76000 0 00144
                               SLT 4
00263 0 76000 0 00002
                               CHS
00264 -0 12000 0 00277
                               TMI NUMAX
                              HPR 68
00265 0 42000 0 00104
00266 0 02000 0 00265
                               TRA NG
00267 0 50000 0 01373
                         CMPLO CLA LOMAXV
00270 0 40200 0 00000
                               SUB
00271 0 10000 0 00277
                               TTE NUMAX
00272 -0 76000 0 00144
                               SLT 4
00273 0 76000 0 00002
                               CHS
00274 0 40200 0 00574
                               SUB VERR
00275 -0 12000 0 00277
                               TMI NUMAX
00276 0 42000 0 00114
                               HPR 76
00277 0 50000 0 01346
                         NUMAX CLA PRICEX
00300 0 07400 4 00544
                               TSX ADJV,4
00301 0 76000 0 00164
                               CWT 4
                                                     TEST FOR CYCLE PRINT OFF LINE
00302 0 02000 0 00304
                         TCYPR TRA TCYPR+2
00303 0 02000 0 00306
                               TRA TCYPP+4
                                                     TEST FOR CYCLE PRINT
00304 0 76000 0 00165
                               SWT 5
00305 0 02000 0 00310
                               TRA TCYPR+6
00306 0 50200 0 01301
                               CLS ONFADR
00307 0 02000 0 00340
                               TRA ENDPR+1
00310 10 50000 0 00603
                               CLA YTODR
00311 0 07400 4 00700
                               TSX DISTRB,4
                         CHKPR SWT 6
00312 0 76000 0 00166
00313 0 02000 0 00046
                               TPA NEWIT
00314 0 50000 0 00600
                               CLA DECR
00315 0 60100 0 01374
                               STO PROODE
00316 0 50000 0 00604
                               CLA CHECK
00317 0 07400 4 00700
                               TSY DISTRE 4
                               TCY VERIF,4
00320 0 07400 4 00555
00321 0 02000 0 00325
                               TRA HPR8
00322: 0 50000 0 00605
                               CLA PRINT
00323 0 07400 4 00700
                               TSX DISTRR.4
00324 0 42000 0 00077
                               HPR 63
00325 0 50000 0 01350
                         HPPR CLA ITERNO
00326 0 56000 0 01351
                               LDQ STAGES
00327 0 42000 0 00010
                               HPR 8
00330 0 02000 0 00046
                               TRA NEWIT
00331 0 50000 0 01375
                         NOXR CLA STATUS
00332 0 10000 0 00335
                               TZF NOXR+4
00333 0 50000 0 01302
                               CLA TWOADR
00334 0 02000 0 00055
                               TRA ENDST
00335 0 40200 0 01303
                               SUB THREEA
00336 0 02000 0 00340
                               TRA ENDPR+1
00337 0 50000 0 00577
                         ENDPR CLA DECT
00340 0 60100 0 01374
                               STO PRCODE
00341 0 76200 0 00304
                               RDR 4
                               LDA PDROPG
00342 0 46000 0 01325
                               LXA 2MAND2,1
00343 0 53400 1 01335
                         CPYP CPY 0,1
00344 0 70000 1 00000
00345 2 00001 1 00344
                         RECLP TIX CPYP,1,1
                                                     PECALL P FROM DRUM 4
00346 9 50000 0 00605
                               CLA PRINT
00347 0 07400 4 00700
                               TSY DISTRR.4
```

```
00350 0 50000 0 01374
                              CLA PROODE
00351 0 12000 0 00370
                               TPL FNDF7
00352 0 40000 0 01301
                               ADD ONEADR
00353 0 10000 0 00310
                               TTE TCYPR+6
00354 0 40000 0 01302
                               ADD TWOADR
00355 0 10000 0 00366
                               TZF HPR5
                                                       102 ERPOR MATRIX SINGULAR
00356 0 42000 0 00102
                               HPR 66
00357 0 50000 0 01344
                               CLA APPTRS
00360 0 40200 0 01301
                               SUR ONFADR
00361 0 60100 0 01344
                               STO ARRTRS
00362 0 50000 0 01300
                               CLA NOUGHT
00363 -0 53400 2 00571
                               LXD MARK 12
00364 0 60100 2 00000
                         BASE STO 0.2
                               TRA NEWIT
00365 0 02000 0 00046
00366 0 42000 0 00005
                         HPR5 HPR 5
00367 0 02000 0 00046
                               TRA NEWIT
00370 0 50000 0 01302
                         ENDEZ CLA STSOL
                                                       STORE FINAL SOLN ON DRUM
00371 0 07400 4 00700
                               TSX DISTRB,4
00372 0 50000 0 01345
                               CLA FAZNUM
                               SUB ONFADR
00373 0 40200 0 01301
00374 0 10000 0 00401
                               T7F FINIS
                               STO FAZNUM
00375 0 60100 0 01345
                               TCX ADJST,4
00376 0 07400 4 00541
                                                       HALT AFTER FINAL PRINT
                               HPR 6
00377 0 42000 0 00006
                               TRA NEWIT
00400 0 02000 0 00046
                         FINIS SLN 1
00401 0 76000 0 00141
00402 0 76000 0 00142
                               SLN 2
00403 0 76000 0 00143
                               SLN 3
00404 0 76000 0 00144
                               SLN 4
00405 0 42000 0 00007
                         DONE HPR 7
00406 0 02000 0 00405
                               TRA DONE
00407 0 50000 0 01323
                         FESLN CLA DPFXUN
00410 0 42000 0 00003
                               HPR 3
                                                       3 HALT FFAS SOLN SCALING ZERO
00411 0 02000 0 00421
                               TRA SCALE
                         NFESL CLA FAZTYP
00412 0 50000 0 01343
00413 -0 10000 0 00432
                               TN7 IMPOS
                               ADM SCALHI
00414 0 40100 0 01355
00415 0 40100 0 01356
                               ADM SCALLO
00416 9 10000 0 00432
                               TZF IMPOS
00417 0 76000 0 00000
                               CLM
                                                       2 HALT NO FEAS SOLN WITH THIS SCALING
00420 0 42000 0 00002
                               HPR 2
00421 0 60200 0 01355
                         SCALE SEW SCALHT
00422 0 76000 0 00000
                               CLM
00423 0 60200 0 01356
                               SLW SCALLO
                         RDSCL SWT 6
00424 0 76000 0 00166
00425 0 02000 0 00046
                               TRA NEWIT
00426 0 76200 0 00321
                               RCD
00427 0 70000 0 01355
                               CPY SCALHI
00430 0 70000 0 01356
                               CPY SCALLO
00431 0 02000 0 00046
                               TRA NEWIT
00432 0 50000 0 01352
                         IMPOS CLA DP3LIM
                               TZF IMPOS+4
00433 0 10000 0 00436
00434 0 50000 0 00606
                               CLA PERYT
00435 0 07400 4 00700
                               TSX DISTRR,4
00436 0 42000 0 00004
                                                       4 HALT ARROLLITELY NO FEAS SOLN
                               HPP 4
```

```
TRA TMPOS+4
00437 0 02000 0 00436
                        SURCH LXA 1MAND1,2
00440 0 53400 2 01334
                        SECHH CLS 0.2
00441 0 50200 2 00000
00442 0 12000 0 00451
                              TPL FIND
                              TIX SRCHH,2,1
00443 2 00001 2 00441
                                                      101 FPROR NO NEG J/H
                        HPR65 HPR 65
00444 0 42000 0 00101
                              TRA HPR65
00445 0 02000 0 00444
00446 0 77200 0 00225
                        NFIND REW 5
                                                      103 ERROR CANT FIND A/S
00447 0 42000 0 00103
                              HPR 67
                               TRA NFIND+1
00450 0 02000 0 00447
                        FIND STO INDEXS
00451 0 60100 0 01361
00452 0 77200 0 00222
                               RFW 2
                               SXD MARK . 2
00453 +0 63400 2 00571
00454 0 02000 0 00457
                               TPA PEDTP
                               BST 5
00455 0 76400 0 00205
                                                      703 FRROR STOP
00456 0 42000 0 00703
                               HPR 451
                        REDTP RTR 5
00457 0 76200 0 00225
                               CLA TORIGN
00460 0 50000 0 01342
                               STA REDTP+4
00461 0 62100 0 00463
00462 0 40000 0 01301
                               ADD ONFADR
                               CPY
00463 0 70000 0 00000
00464 0 02000 0 00461
                               TRA REDTP+2
00465 0 02000 0 00446
                               TRA NFIND
                               ARS 237
00466 0 77100 0 00355
00467 0 77100 0 00355
                               ARS 237
00470 -0 76000 0 00012
                               RTT
                               TRA REDTP-2
00471 0 02000 0 00455
00472 0 50000 0 01342
                               CLA TORIGN
00473 0 76000 0 00006
                               COM
00474 0 73400 2 00000
                               PAX 0,2
00475 0 50000 2 77777
                         JSYMR CLA 32767,2
00476 0 10000 0 00454
                               T7F FIND+3
                               TMI JSYMR+5
00477 -0 12000 0 00502
                               SUB INDEXS
00500 0 40200 0 01361
                               TTE LOCAS
00501 0 10000 0 00503
                               TIX JSYMB,2,2
00502 2 00002 2 00475
                         LOCAS TIX LOCAS+1.2.1
00503 2 00001 2 00504
00504 0 50000 2 77777
                               CLA 32767,2
                               STO AORIGN
00505 0 60100 0 01364
                               REW 5
00506 0 77200 0 00225
                               CLA WORIGN
00507 0 50000 0 01341
                               STO BORIGN
00510 0 60100 0 01365
00511 0 50000 0 00601
                               CLA LDFLV
00512 0 07400 4 00700
                               TSX DISTRB,4
                               CLA FTRAN
00513 0 50000 0 00577
00514 0 07400 4 00700
                               TSX DISTRB.4
                               CLM
00515 0 76000 0 00000
00516 0 60200 0 01364
                               SLW AORIGN
                               CLA CHUZR
00517 0 50000 0 00600
00520 0 07400 4 00700
                               TEX DISTRR.4
                               CLA INDEXR
00521 0 50000 0 01360
                               TTE SNGLP
00522 0 10000 0 00532
00523 0 77100 0 00023
                               ARS 19
00524 0 40000 0 01337
                               ADD HORIGN
                               STA PRMUT
00525 0 62100 0 00527
```

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```
LYD MARK . 2
00526 -0 53400 2 00571
                         PRMIIT CLA
00527 0 50000 0 00000
00530 0 60100 2 00000
                               STO 0.2
                                              J/R TO J/H
                               TRA NURAS
00531 0 02000 0 00225
                         SNGLR CLS FIVEAD
00532 0 50200 0 01304
00533 0 60100 0 01374
                               STO PPCODE
                               LXA 2MAND2.1
00534 0 53400 1 01335
00535 0 76000 0 00000
                               CLM
00536 0 60200 1 00000
                         SNGA SLW 0.1
00537 2 00001 1 00536
                               TIX SNGA . 1 . 1
00540 0 02000 0 00346
                               TRA RECLP+1
00541 0 50000 0 01346
                         ADJST CLA PRICEX
00542 0 40200 0 01302
                               SUB TWOADR
                               STO PRICEX
00543 0 60100 0 01346
00544 0 40000 0 01340
                         ADJV ADD VORIGN
                               STA STPDN
00545 0 62100 0 00550
00546 0 40000 0 01301
                               ADD ONFADR
00547 0 62100 0 00551
                               STA STPDN+1
00550 0 50000 0 00000
                         STPDN CLA
00551 0 56000 0 00000
                               LDO
                               STO HIMAXV
00552 0 60100 0 01372
00553 -0 60000 0 01373
                               STO LOMAYY
                               TRA 1.4
00554 0 02000 4 00001
00555 0 53400 1 01335
                         VERIF LXA 2MAND2,1
00556 0 50000 0 00575
                               CLA CKTOL
                                                     TOLFRANCE IS 2 TO -26
                         CKI
00557 +0 40000 1 00000
                               SRM 0.1
00560 0 60100 0 00571
                               STO MARK
                               TMI TURIG
00561 -0 12000 0 00570
00562 2 00002 1 00556
                               TIX CK1,1,2
                               CLA PROODE
00563 0 50000 0 01374
                               SUB ONEADR
                                                     ALWAYS PRINT PHASE 1
00564 0 40200 0 01301
00565 0 10000 0 00570
                               TTE TURIS
00566 0 76000 0 00161
                               SWT 1
00567 0 02000 4 00001
                               TRA 1.4
00570 0 02000 4 00002
                         TUBIG TRA 2.4
                         MARK P7F
00571 0 00000 0 00000
00572 0 02000 0 00022
                         RTURN TRA START
                         TOLER OCT 14000000000
                                                       2 TO -33 TOLFRANCE
00573 +14000000000
00574 +0000000000003
                         VERR DEC 3
                                                     TOLFRANCE FOR MONOTONICITY CHECK
                                                     TOLERANCE FOR CHECK
00575 +14600000000
                         CKTOL OCT 14600000000
                         DEC4 DEC 4
00576 +000000000004
00577 +0000000000007
                         DECT DEC 7
                         DECR DEC R
00600 +0000000000010
                         LDFLV DEC 6
00601 +000000000006
                         FLIMN DEC 9
00602 +0000000000011
                         YTODR DEC 10
00603 +000000000012
00604 +0000000000013
                         CHECK DEC 11
00605 +000000000014
                         PRINT DEC 12
                         PERYT DEC 13
00606 +000000000015
                 01301
                         LDATA SYN ONFADR
                 01302
                         STSOL SYN TWOADR
                         FORMC SYN THREEA
                 01303
                 00576
                         BTRAN SYN DEC4
                 01304
                         PRICE SYN FIVEAD
                 00577
                         FTRAN SYN DECT
```

```
00600
                        CHUZR SYN DFC8
                00020
                              ORG MCRORG
10020 0 70000 4 00042
                       TRNEMB CPY TALLY+1,4
00021 2 00001 4 00020
                              TIX MCRORG, 4,1
                              RDR 4
00022 0 76200 0 00304
                              CLA WORIGN
00023 0 50000 0 01341
00024 0 62100 0 00027
                              STA DRR2V
00025 0 53400 4 01335
                              LXA 2MAND2,4
                              LDA BDRORG
00026 0 46000 0 01324
                        DRB2V CPY 0,4
00027 0 70000 4 00000
00030 2 00001 4 00027
                              TIX DRB2V.4.1
00031 0 50000 0 01340
                              CLA VORIGN
00032 0 60100 0 01365
                              STO BORIGN
00033 0 50000 0 00577
                              CLA FTRAN
00034 0 07490 4 00700
                              TSY DISTRB,4
00035 0 76200 0 00301
                              PDR 1
00036 -0 53400 4 00041
                              LXD TALLY,4
00037 0 46000 0 00041
                              LDA TALLY
00040 0 02000 0 00020
                              TOA TRMEMA
00041 0 00020 0 00015
                        TALLY P7E 13.0.16
                00000
                              END
```

```
2TAPLE 00747,00747
                 00020
                              ORG MCROPG
                 00020 0
                               HED
00020 0 76000 0 00141
                       DEDMCB SEN 1
00021 0.02000 0.00035
                               TRA DATA
00022 0 76600 0 00304
                       STPIKE WOR 4
00023 0 50000 0 01341
                              CLA WORTON
00024 0 40000 0 01335
                               ADD SMANDS
00025 0 62100 0 00030
                               STA STOT
00026 0 46000 0 01326
                               TUV EDBUSE
00027 0 53400 4 01335
                              LXA 2MAND2,4
00030 0 70000.4 00000
                        STOT COY 0.4
00031 2 00001 4 00030
                               TIX STCI,4,1
00032 0 76000 0 00141
                               SLN 1
00033 0 76000 0 00142
                               SLN 2
00034 0 02000 0 00037
                               TRA CONT
00035 0 50000 0 00356
                        DATA CLA LDATA
00036 0 07400 4 00700
                               TSY DISTRR,4
00037 0 50000 0 00311
                              CLA STTRA
00040 0 65100 0 01357
                               STA MORTRA
00041 0 50000 0 01340
                              CLA VORIGN
20242 0 40000 0 01335
                               ADD 2MANDS
                                                      THITTALIZE
00043 0 62100 0 00140
                              STA STORP
00044 0 62100 0 00156
                              STA VOMEM
00045 0 62100 0 00232
                              STA RECLY
00046 0 62100 0 00172
                              STA RECLU
00047 0 50000 0 01341
                              CLA WORTON
00050 0 60100 0 01365
                              STO BORIGN
00051 0 60100 0 01364
                              STO AORIGN
00052 0 40000 0 01335
                               ADD 2MAND2
00053 0 62100 0 00223
                              STA CHSYN+1
00054 0 62100 0 00270
                               STA RTOPP
00055 0 50000 0 01342
                              CLA TORIGN
00056 0 40000 0 01335
                               ADD 2MAND2
00057 0 62100 0 00246
                              STA MCPY
00060 0 62100 0 00251
                              STA STORW
00061 0 62100 0 00300
                              STA CPYP
00062 0 62100 0 00343
                              STA CK2
00063 -0 76000 0 00142
                              SLT 2
00064 0 02000 0 00073
                              TRA SOLM
00065 0 50000 0 00364
                              CLA FTRAN
00066 0 07400 4 00700
                              TSY DISTRR.A
                                                      TRANSFORM F TO W ON INITIAL RUN
00067 0 50000 0 01341
                              CLA WORTEN
00070 0 76000 0 00144
                              SLN 4
00071 0 02000 0 00212
                               TRA SHUFL
00072 +140000000000
                        TOLER OCT 14000000000
00073 0 50000 0 00357
                        SOLN CLA STSOL
00074 0 07400 4 00700
                              TSY DISTPR.4
                                                      RESTART OF PLP ONLY
00075 0 50200 0 01352
                        FLAGS CLS DR3LIM
00076 0 76000 0 00141
                              SLN 1
00077 0 76000 0 00161
                              SHIT T
00100 0 40000 0 01353
                              ADD DR3FND
00101 0 12000 0 00130
                              TPL PEGCY
00102 0 76000 0 00000
                              CLM
```

```
00103 0 60200 0 01374
                        ENDET CEM DOCODE
00104 0 50000 0 00370
                              CLA CHECK
00105 0 07400 4 00700
                              TAY DICTOR 4
00106 0 50000 0 01374
                              CLA PROODE
00107 -0 10000 0 00112
                              TM7 PPT
00110 0 07400 4 00341
                              TSX VERIF.4
00111 0 02000 0 00114
                              TRA FOS
                                                    NO ERROR AT EOS
20112 0 50200 0 00371
                              CLA PRINT
00113 0 07400 4 00700
                              TSY DISTRR,4
00114 0 50000 0 01352
                              CLA OPALIM
00115 0 10000 0 00120
                              TZE FOST
00116 0 50000 0 00372
                              CLA PERYT
00117 0 07400 4 00700
                              TEY DISTOR , 4
00120 0 50000 0 01374
                        FOST CLA PROODE
00121 -0 10000 0 00273
                              THE ENDER
00122 0 50000 0 00354
                              CLA MARK
00123 0 12000 0 00125
                              TPL SEMA4
00124 0 42000 0 00070
                              HPP 54
                                                    FRROR AT END OF STAGE
00125 0 76000 0 00161
                        SEMA4 SHT 1
00126 0 02000 0 00130
                              TRA BEGCY
00127 0 42000 0 00000
                              HPR
                                                      EXTERNAL COMMAND HALT
00130 0 50000 0 00350
                        REGCY CLA FORMO
00131 0 07400 4 00700
                              TSY DISTRR.4
00132 0 50000 0 00361
                              CLA RTRAN
00133 0 77200 0 00222
                              REW 7
00134 0 07400 4 00700
                              TEX DISTER . A
00135 0 76600 0 00304
                              WOR 4
00136 0 46000 0 01325
                              LDA PORORG
                              LXA 2MAND2.1
00137 0 53400 1 01335
00140 0 76000 1 00000
                        STORP CPV 0.1
                              TIX STORP.1.1
00141 2 00001 1 00140
00142 0 76000 0 00162
                              SWT 2
00143 0 00000 0 00145
                              TRA CODES
00144 0 76000 0 00142
                              SLN 2
00145 0 50000 0 00362
                        CODES CLA PRICE
00146 0 07400 4 00700
                              TSX DISTRR.4
00147 0 74000 0 00140
                              clic
00150 0 50000 0 01361
                              CLA INDEXS
00151 -0 10000 0 00162
                              TN7 TRNEM
00152 0 76000 0 00141
                              SLN 1
00153 0 53400 4 01335
                              LXA 2MAND2,4
00154 0 76200 0 00301
                              RDR 1
00155 0 46000 0 01331
                                                    RECALL V FOR PRINT
                              LDA VDRORG
00156 0 70000 4 00000
                        VOMEM CPY 0,4
00157 2 00001 4 00156
                              TIX VOMEN.4.1
                              CLA FIVEAD
00160 0 50000 0 01304
00161 0 02000 0 00103
                              TRA ENDST
00162 0 50000 0 01341
                        TRNEM CLA WORTON
                              STO BORIGN
00163 0 60100 0 01365
00164 0 50000 0 00363
                              CLA LDFLV
00165 0 07400 4 00700
                              TSY DISTRE,4
00166 0 50000 0 00364
                              CLA FTRAN
00167 0 07400 4 00700
                              TSY DISTPR,4
00170 0 76200 0 00304
                              RDR 4
00171 0 53400 1 01335
```

LYA 2MAND2.1

```
00172 0 76000 1 00000
                         RECEW CRY 0.1
00173 2 00001 1 00172
                               TIX DECLW, 1,1
00174 0 54000 0 00366
                               CLA FLIMM
                               TCY MISTRO ,4
00175 0 07400 4 00700
00176 0 50000 0 01360
                              CLA INDEYR
00177 0 77100 0 00023
                               APS 10
00200 0 40000 0 01337
                               AND HODICH
00201 0 62100 0 00203
                               HACTS ATS
      0 50000 0 01361
00202
                               CLA INDEXS
                         STORH STO
00203
     0 60100 0 00000
00204
     0 50000 0 01350
                               CLA ITERNO
00205 0 40000 0 01301
                               ADD ONEADR
ander a spine a disea
                               STO ITERNO
00207 0 86000 0 00367
                              CLA YTODR
00210 0 07400 4 00700
                               TOX DISTRR,4
00211 0 50000 0 01340
                               CLA VORTON
00212 0 76600 0 00301
                         SHUFL WOR 1
.00213 0 40000 0 01335
                               ADD 2MAND2
00214 0 62100 0 00220
                               STA STEMP
00215 0 62100 0 00222
                               STA CHSYN
00216 0 46000 0 01324
                               LDA BORORG
00217 0 53400 7 01335
                               LYA 2MAND2.7
00220 0 70000 1 00000
                         STEMP CPV 0,1
                                                       TEMP STOR W CH FND DR 1
00221 2 00001 1 00220
                               TIX STEMP,1,1
00222 10 50200 2 00000
                         CHSYN CLS 0,2
00223 0 64100 2 00000
                               STO 0.2
                               TIY CHEYN, 2,1
00224 2 00001 2 00222
00225 -0 76000 0 00144
                               SLT 4
00226 0 02000 0 00230
                               TRA DRUMT
00227 0 02000 0 00234
                               TRA RECLUAR
00230 0 76200 0 00301
                         DRUM1 RDR 1
00231 0 46000 0 01331
                               LDA VDRORG
20232 0 70000 4 00000
                         RECLV CPY 0.4
00233 2 00001 4 00232
                               TIY PECLV,4,1
00234 0 50000 0 00365
                               CLA CHUZR
00235 0 07400 4 00700
                               TSY DISTRR.4
00236 0 50000 0 01360
                               CLA INDEXE
00237 0 10000 0 00312
                               TTE NOXE
00240 0 50000 0 00366
                               CLA ELIMN
00241 0 76000 0 00141
                               SLN 1
00242 0 07400 4 00700
                               TSY DISTRR.4
00243 0 76200 0 00301
                               RUP 1
                               LDA BDRORG
00244 0 46000 0 01324
00245 0 53400 3 01335
                               LXA 2MAND2.3
00246 0 70000 1 00000
                               CPY 0.1
                               TIY WCPY , 1 . 1
00247 2 00001 1 00246
00250 0 76600 0 00304
                               KOR 4
00251 0 70000 2 00000
                         STORM CPY 0.2
00252 2 00001 2 00251
                               TIX STORW, 2,1
00253 0 50000 0 00357
                               CLA STEAL
                               TRY DICTER,4
00254 0 07400 4 00700
00255 0 50000 0 00072
                               CLA TOLFR
                               SRM HISCAR
                                                       TEST FOR THETA ZERO
00256 -0 40000 0 01366
00257 0 12000 0 00322
                               TPL CHKPR
                                                     DO NOT PRINT FOR THETA ZERO
00260 0 76000 0 00164
                               SWT 4
```

```
00261 0 02000 0 00263
                        TCYPP TRA TCYPP+2
00262 0 02000 0 00265
                              TPA TCYPR+4
00263 0 76000 0 00165
                               CHT E
20264 0 02000 0 00322
                              TRA CHEPR
00265 0 74200 0 00304
                               BUB 4
                              FUV BUSUSE
00266 0 46000 0 01324
                              LXA 2MAND2.1
00267 0 53400 1 01335
20270 0 70000 1 00000
                        PTOPP CPY 0.1
00271 2 00001 1 00270
                              TIX BTOPR .1 .1
                               CLS NOUGHT
00272 0 50200 0 01300
                        FNOPR ACL TWOADS
00273 0 36100 0 01302
                               STO PROOF
00274 0 60100 0 01374
00275 0 76200 0 00304
                               BUB 4
00276 0 46000 0 01325
                               LDA PDRORG
00277 0 52400 1 01335
                              LXA 2MAND2 + T
00300 0 70000 1 00000
                        CPYP CPY 0,1
                               TIY CPYP+1+1
00301 2 00001 1 00300
00302 0 50000 0 00371
                               CLA PRINT
00303. 0 07400 4 00700
                              TEX DISTRR.4
                        CUTCH CLA PROODE
00304 0 50000 0 01374
                               TPL FINIS
00305 0 12000 0 00315
00306 0 40000 0 01302
                               ADD TWOADR
00307 0 10000 0 00322
                               TIE CHKOD
                                                      15 STOP RT-HAND SIDE OPEN
00310 0 42000 0 00015
                               HPP 13
00311 0 02000 0 00075
                        STIRA TRA FLAGS
00312 0 76000 0 00141
                        MOXR SEN 1
                              CLS TWOADR
00313 0 50200 0 01302
                               TRA ENDPR
00314 0 02000 0 00273
                         FINIS SLN 2
00315 0 76000 0 00142
                               5LN 3
00316 0 76000 0 00143
                               SLN 4
00317 0 76000 0 00144
                                                       TINAL HALT
00320 0 42000 0 00017
                               HPR 15
                               TRA FINIS+3
00321 0 02000 0 00320
00377 0 76000 0 00166
                        CHKPP SWT 6
00323 0 02000 0 00075
                               TRA FLAGS
00324 0 50000 0 00355
                               CLA DECA
00325 0 60100 0 01374
                               STO PROODE
00326 0 50000 0 00370
                               CLA CHECK
00327 0 07400 4 00700
                               TSX DISTRR.4
                               TSX VEPIF.4
00330 0 07400 4 00341
00331 0 02000 0 00335
                               TRA GOOD
                              CLA PRINT
00332 0 50000 0 00371
                              TEX DISTRR.4
00333 0 07400 4 00700
00334 0 42000 0 00077
                                                     FRROR ON CHECK PRINT
                               HPP 63
                        GOOD CLA ITERNO
00335 0 50000 0 01350
                                                    DISPLAY INTERNO AND STAGES
                               LDO STAGES
00336 0 56000 0 01351
                                                     AFTER GOOD SOLUTION
                               HPR R
00337 0 42000 0 00010
00340 0 02000 0 00075
                               TRA FLAGS
00341 0 53400 1 01335
                        VERIF LXA 2MAND2.1
                               CLA FLZERO
00342 0 50000 0 01314
00343 -0 40000 1 00000
                               SRM 0.1
00344 0 60100 0 00354
                               STO MARK
                               TMI TURIS
00345 -0 12000 0 00353
00346 2 00002 1 00342
                               TIX CK1.1.2
00347 0 50000 0 01374
                               CLA PROODE
```

FOS CHECK SWITCH ONE

```
ORG MCRORG
                 00020
                               HED
                 00020
                         SBINV CLA HPR
00020 0 50000 0 00172
                               STO MCRTRA
00021 0 60100 0 01357
                               CLA HORIGN
      0 50000 0 01337
00022
                                                     ZERO TO NUMBER ARBTRS DONE
                               STD ARBTRS
00023 0 62200 0 01344
                               ADD 1MAND1
00024 0 40000 0 01334
                               STA NURUN+1
      0 62100 0 00175
00025
                               STA CLEAR
00026 0 62100 0 00064
                               STA NURUN+3
00027 0 62100 0 00177
                               STA FAKE+1
00030 0 62100 0 00153
                               STA CLEAR+4
00031 0 62100 0 00070
                               CLA WORIGN
00032 0 50000 0 01341
                               STA FAKE+4
00033 0 62100 0 00156
                               STA NURUN+4
00034 0 62100 0 00200
                               LXA 1MAND1+1
00035 0 53400 1 01334
                               TIX TEST .1 .1
00036 2 00001 1 00037
                               CLA ARBIRS
                         TEST
00037 0 50000 0 01344
                               TMI NURUN
                                                      POSITIVE ARBTRS MEANS FIRST TIME FOR
00040 -0 12000 0 00174
                                CLA 1DECR
00041 0 50000 0 00173
                                                      INVERSION RUN
                                STO TPALTR
00042 0 60100 0 01354
                                CLA NOUGHT
00043 0 50000 0 01300
                                STO ITERNO
00044 0 60100 0 01350
                                STO STAGES
00045 0 60100 0 01351
                                STO ARBTRS
00046 0 60100 0 01344
                                STO DR3LIM
 00047 0 60100 0 01352
                                RDR 4
 00050 0 76200 0 00304
                                CLA VORIGN
 00051 0 50000 0 01340
                                ADD 2MAND2
 00052 0 40000 0 01335
                                STA B2V
 00053 0 62100 0 00056
                                LXA 2MAND2+4
 00054 0 53400 4 01335
                                LDA BDRORG
 00055 0 46000 0 01324
                                                      B TO V SOLUTION VECTOR
                                CPY 0,4
 00056 0 70000 4 00000
 00057 2 00001 4 00056
                                TIX B2V,4,1
                                CLA TORIGN
 00060 0 50000 0 01342
                                STA CLEAR+6
 00061 0 62100 0 00072
                                ADD ONEADR
 00062 0 40000 0 01301
                                STA UPROW
                                                      EXAMINE H REGION FOR VECTORS TO
 00063 0 62100 0 00117
                          CLEAR CLA 0.1
 00064 0 50000 1 00000
                                                      BE TRANSFORMED
                                TZE FAKE
 00065 0 10000 0 00152
                                TMI FAKE
 00066 -0 12000 0 00152
                                LDQ NOUGHT
 00067 0 56000 0 01300
```

```
00070 +0 60000 1 00000
                               STQ 0,1
                                                     CLEAR H LOCATION JUST CHECKED
00071 0 60100 0 00004
                               STO COMMON+4
                                                     VECTOR SYMBOL TO COMMON+4
                               STO
                                                       VECTOR TO T STORAGE
00072 0 60100 0 00000
                               LRS 18
00073 0 76500 0 00022
00074 0 40200 0 00166
                               SUB UP
                               TNZ FAKE+3
                                                     VECTOR FOR INVERSION
00075 -0 10000 0 00155
00076 0 76300 0 00006
                               LLS 6
                                                     UNIT VECTOR
00077 0 60100 0 00000
                               STO COMMON
                                                     COMPUTE ROW FROM VECTOR SYMBOL
00100 0 76000 0 00000
                               CLM
00101 0 76300 0 00006
                               LLS 6
00102 0 60100 0 00001
                               STO COMMON+1
00103 0 76000 0 00000
                               CLM
00104 0 76300 0 00006
                               LLS 6
                                                     CONVERSION FOR ROW OF
00105 0 60100 0 00002
                               STO COMMON+2
                                                     UNIT VECTOR
00106 0 56000 0 00000
                               LDQ COMMON
00107 0 20000 0 00170
                               MPY TENSQ
00110 -0 60000 0 00000
                               STQ COMMON
00111 0 56000 0 00001
                               LDQ COMMON+1
00112 0 20000 0 00171
                               MPY TEN
00113 -0 60000 0 00001
                               STQ COMMON+1
00114 0 50000 0 00000
                               CLA COMMON
00115 0 40000 0 00001
                               ADD COMMON+1
00116 0 40000 0 00002
                               ADD COMMON+2
                                                     STORE UNIT VECTOR AND ROW
00117 0 60100 0 00000
                         UPROW STO
                                                     NUMBER IN T REGION
00120 0 50000 0 00117
                               CLA UPROW
00121 0 40000 0 01301
                               ADD ONEADR
00122 0 62100 0 00072
                               STA CLEAR+6
00123 0 40000 0 01301
                               ADD ONEADR
00124 0 62100 0 00117
                               STA UPROW
                               TIX CLEAR,1,1
                                                     CHECK NEXT LOCATION H
00125 2 00001 1 00064
00126 0 50000 0 00072
                               CLA CLEAR+6
00127 0 62100 0 00142
                               STA UNIT+5
00130 0 40200 0 01342
                               SUB TORIGN
00131 0 73400 4 00000
                               PAX 0.4
00132 -3 00000 4 00150
                               TXL FAKE-2.4
00133 0 50000 0 00117
                               CLA UPROW
                               STA UNIT
00134 0 62100 0 00135
                                                     PUT UNIT VECTOR IN H ON CORRECT ROW
00135 0 50000 4 00000
                         UNIT CLA 0,4
00136 0 40000 0 01337
                               ADD HORIGN
00137 0 62100 0 00141
                               STA UNIT+4
00140 0 62100 0 00146
                               STA UNIT+9
00141 0 50000 0 00000
                               CLA
00142 0 56000 4 00000
                               LDQ 0,4
00143 0 10000 0 00146
                               TZE UNIT+9
00144 0 42000 0 00125
                               HPR 85
                                                             125 ERROR
                               TRA UNIT+7
                                                     H FOR UNIT ROW UNEQUAL ZERO
00145 0 02000 0 00144
00146 -0 60000 0 00000
                               STQ
00147 2 00002 4 00135
                               TIX UNIT:4.2
00150 0 50000 0 00156
                               CLA FAKE+4
00151 0 02000 0 00206
                               TRA FINDJ
00152 0 50200 0 00167
                         FAKE CLS FONYH
00153 0 60100 1 00000
                               STO 0,1
00154 0 02000 0 00125
                               TRA UPROW+6
00155 0 50200 0 00004
                               CLS COMMON+4
00156 0 60100 0 00000
                                                     NEGATIVE VECTOR SYMBOL TO W STORAGE
                               STO
```

```
CLA ARBTRS
00157 0 50000 0 01344
                                                    TALLY NO OF ARBTRS
00160 0 40200 0 01301
                              SUB ONEADR
00161 0 60100 0 01344
                              STO ARBTRS
                              CLA FAKE+4
00162 0 50000 0 00156
00163 0 40000 0 01301
                              ADD ONEADR
00164 0 62100 0 00156
                              STA FAKE+4
00165 0 02000 0 00125
                              TRA UPROW+6
00166 +000000006447
                              OCT 000000006447
00167 -140000000000
                        FONYH OCT -140000000000
00170 +000000000144
                        TENSO DEC 100
00171 +000000000012
                        TEN
                             DEC 10
00172 0 42000 0 77777
                             HPR 32767
                        HPR
                                                    RESTART RUN
00173 0 00001 0 00000
                        1DECR PZE 0,0,1
00174 0 56000 0 01300
                        NURUN LDQ NOUGHT
                                                    INVERSION RUN IS
00175 0 50000 1 00000
                              CLA 0,1
                                                    CONTINUING FROM THE
00176 0 12000 0 00204
                              TPL NURUN+8
                                                    END OF STAGE OF A
00177 -0 60000 1 00000
                                                    PREVIOUS RUN
                              STQ 0,1
00200 0 60100 0 00000
                              STO
00201 0 50000 0 00200
                              CLA NURUN+4
00202 0 40000 0 01301
                              ADD ONEADR
00203 0 62100 0 00200
                              STA NURUN+4
                              TIX NURUN+1,1,1
00204 2 00001 1 00175
00205 0 50000 0 00200
                               CLA NURUN+4
00206 0 62100 0 00252
                         FINDJ STA SURCH+5
                               ANA MASKAD
00207 -0 32000 0 01320
00210 0 40200 0 01341
                               SUB WORIGN
00211 0 60100 0 01364
                               STO AORIGN
00212 0 60100 0 01365
                              STO BORIGN
00213 0 40000 0 01344
                              ADD ARBTRS
00214 0 10000 0 00217
                              TZE FINDJ+9
                                                    VECTOR COUNT AND ARBITS
00215 0 42000 0 00120
                              HPR 80
                                                    DISAGREE 120 ERROR
00216 0 02000 0 00215
                              TRA FINDJ+7
00217 0 60100 0 01370
                              STO HIBEST
00220 0 50000 0 01341
                              CLA WORIGN
00221 0 40000 0 01334
                               ADD 1MAND1
00222 0 62100 0 00262
                              STA HOLDJ
00223 0 02000 0 00226
                              TRA NUREC
00224 0 76400 0 00205
                              BST 5
                                                    TAPE ERROR 706
00225 0 42000 0 00706
                              HPR 454
                        NUREC CLA TORIGN
.00226 0 50000 0 01342
00227 0 40000 0 01301
                              ADD ONEADR
00230 0 76000 0 00006
                               COM
00231 0 73400 6 00000
                              PAX 0.6
00232 0 76200 0 00225
                              RTB 5
                         REDT5 CPY 32766,2
00233 0 70000 2 77776
00234 2 00001 2 00233
                              TIX REDT5,2,1
                                                              END OF FILE IS ERROR
00235 0 02000 0 00333
                              TRA FILE
00236 '0 77100 0 00355
                               ARS 237
00237 0 77100 0 00355
                               ARS 237
00240 -0 76000 0 00012
                              RTT
00241 0 02000 0 00224
                              TRA NUREC-2
00242 0 50000 0 01370
                               CLA HIBEST
00243 0 40000 0 00173
                               ADD 1DECR
00244 0 60100 0 01370
                              STO HIBEST
00245 0 53400 2 01365
                        SURCH LXA BORIGN,2
                                                    SEARCH MATRIX TAPE FOR VECTORS
```

```
00246 0 50000 4 77776
                                                       FOR INVERSION
                              CLA 32766 4
00247 0 60100 0 01361
                               STO INDEXS
00250 0 10000 0 00226
                              TZE NUREC
00251 -0 12000 0 00272
                               TMI NEXTW-1
00252 0 40000 2 00000
                               ADD 0.2
00253 -0 10000 0 00273
                               TNZ NEXTW
00254 0 76600 0 00223
                               WTR 3
                                                    TAPE 3 RECORD CONTAINS
00255 0 50000 0 01370
                                                    VECTOR SYMBOL
                               CLA HIBEST
00256 0 62200 4 77777
                                                    TAPE 5 RECORD NUMBER AND
                               STD 32767,4
00257 0 70000 0 01361
                               CPY INDEXS
                                                    MEMORY LOCATION FOR VECTOR
00260 0 70000 4 77777
                               CPY 32767,4
00261 0 50000 0 01361
                               CLA INDEXS
00262 0 60100 0 00000
                        HOLDJ STO
                                                    SAVE VECTOR FOR DRUM 4
00263 0 50000 0 00262
                              CLA HOLDJ
00264 0 40000 0 01301
                              ADD ONEADR
00265 0 62100 0 00262
                              STA HOLDJ
00266 0 50000 0 01364
                              CLA AORIGN
00267 0 40200 0 01301
                               SUB ONEADR
00270 0 60100 0 01364
                               STO AORIGN
00271 0 10000 0 00276
                              TZE NEXTW+3
00272 2 00002 4 00245
                              TIX SURCH,4,2
00273 0 50000 0 01361
                        NEXTW CLA INDEXS
00274 2 00001 2 00252
                              TIX SURCH+5,2,1
00275 0 02000 0 00272
                              TRA NEXTW-1
                                                    NO MATCH TRY NEXT VECTOR
                              WEF 3
00276 0 77000 0 00203
00277 0 77200 0 00205
                              REW 5
00300 0 77200 0 00203
                               REW 3
00301 0-50000 0 00262
                              CLA HOLDJ
00302 0 62100 0 00305
                               STA LOAD-2
00303 0 53400 1 01365
                               LXA BORIGN 1
                                                     STORE VECTORS FOR ARBTRS ON DRUM 4
00304 0 76600 0 00304
                               WDR 4
00305 0 70000 1 00000
                               CPY 0.1
00306 2 00001 1 00305
                              TIX LOAD-2,1,1
00307 0 76200 0 00301
                                                    PREPARE TO RECALL MCR
                        LOAD
                              RDR 1
00310 -0 53400 2 00331
                               LXD LOCAT . 2
00311 0 50000 0 01342
                               CLA TORIGN
00312 0 62100 0 00323
                               STA TRANS
00313 0 40000 0 01301
                               ADD ONEADR
00314 0 62100 0 00326
                               STA TRANS+3
00315 0 40000 0 00332
                               ADD LOCAT+1
00316 0 62100 0 00321
                               STA TRANS-2
00317 0 53400 1 01304
                               LXA FIVEAD.1
00320 0 50000 1 00331
                              CLA LOCAT 1
00321 0 60100 1 00000
                               STO 0.1
00322 2 00001 1 00320
                              TIX TRANS-3,1,1
00323 0 02000 0 00000
                        TRANS TRA
00324 0 46000 0 00331
                                                    MOVE MCR READ TO T STORAGE
                              LDA LOCAT
00325 0 70000 2 00607
                              CPY DPFADD 12
                              TIX 0,2,1
00326 2 00001 2 00000
00327 -0 53400 4 01376
                              LXD CBOXON:4
00330 0 02000 4 00002
                              TRA 2,4
00331 0 00567 0 00013
                        LOCAT PZE 11.0.375
00332 +0000000000004
                              DEC 4
00333 0 42000 0 00123
                        FILE
                              HPR 83
                                                      123 ERROR
00334 0 02000 0 00333
                              TRA FILE
```

```
ZTABLE 00747.00747
                 00020
                               ORG MCRORG
                 00020
                               HED
00020 0 50000 0 00563
                        INVMCR CLA LDATA
00021 0 07400 4 00700
                               TSX DISTRB+4
00022 0 50000 0 00024
                                                     CALL IN SUB MCR TO SET UP
                               CLA INVMCR+4
                                                     BASIS HEADINGS AND LOCATE VECTORS
00023 0 07400 4 00700
                               TSX DISTRB,4
00024 0 00020 0 00000
                               P7E 0.0. INVMCR
                                                     RETURN FROM SUB MCR
00025 0 50000 0 01337
                         START CLA HORIGN
                               ADD 1MAND1
00026 0 40000 0 01334
00027 0 62100 0 00061
                               STA ENDST+4
                                                     SET UP ADDRESSES
00030 0 62100 0 00063
                               STA ENDST+6
                               STA FIXH
00031 0 62100 0 00076
00032 0 62100 0 00100
                               STA FIXH+2
00033 0 62100 0 00145
                               STA UNDO
00034 0 62100 0 00147
                               STA UNDO+2
00035 0 62100 0 00133
                               STA PREPA
00036 0 62100 0 00136
                               STA PREPC
00037 0 62100 0 00365
                               STA CLRH+1
00040 0 67100 0 00367
                               STA CLRH+3
00041 0 50000 0 01342
                               CLA TORIGN
00042 0 40000 0 01335
                               ADD 2MAND2
00043 0 62100 0 00311
                               STA TZERO
00044 0 62100 0 00543
                               STA CK2
00045 0 62100 0 00512
                               STA P2T
                                                     TEST SWITCH 1
                         NUCYC SWT 1
00046 0 76000 0 00161
00047 0 02000 0 00051
                               TRA ENDST-4
00050 0 02000 0 00054
                               TRA ENDST-1
00051 0 50000 0 01353
                               CLA DR3END
00052 0 40200 0 01352
                               SUB DR3LIM
00053 0 12000 0 00157
                               TPL BEGCY
00054 0 76000 0 00000
                               CLM
00055 0 60200 0 01374
                         ENDST SLW PRCODE
00056 0 53400 4 01334
                               LXA 1MAND1.4
                                                     SET ARTIFICIAL VECTORS NEGATIVE
00057 0 56000 0 00561
                               LDQ FONYH
00060 0 50000 0 00561
                               CLA FONYH
                                                     FOR CHECK ROUTINE
00061 0 40000 4 00000
                               ADD 0,4
00062 -0 10000 0 00064
                               TNZ ENDST+7
00063 -0 60000 4 00000
                               STQ 0.4
00064 2 00001 4 00060
                               TIX ENDST+3,4,1
00065 0 77200 0 00225
                               REW 5
                               CLM
00066 0 76000 0 00000
00067 0 62200 0 00200
                               STD WHERE
00070 0 50000 0 00574
                               CLA CHECK
00071 0 07400 4 00700
                               TSX DISTRB,4
                               LXA 1MAND1 +4
00072 0 53400 4 01334
                               CLS FONYH
00073 0 50200 0 00561
00074 0 74500 0 00043
                               LRS 35
00075 0 50000 0 00561
                               CLA FONYH
00076 0 40200 4 00000
                         FIXH SUB 0.4
00077 -0 10000 0 00101
                               TNZ FIXH+3
                                                     RESTORE ARTIFICIAL VECTOR TO PLUS
00100 -0 60000 4 00000
                               STQ 0.4
00101 2 00001 4 00075
                               TIX FIXH-1,4,1
00102 0 07400 4 00541
                               TSX VERIF +4
```

```
TRA ABC
00103 0 02000 0 00106
                               CLA PRINT
00104 0 50000 0 00575
                               TSX DISTRB,4
00105 0 07400 4 00700
                              CLA PRCODE
00106 0 50000 0 01374
                               SUB DEC8
00107 0 40200 0 00557
                               TTE K
00110 0 10000 0 00341
                         CHNGE CLA DR3LIM
00111 0 50000 0 01352
                               TZE CKMRK
00112 0 10000 0 00151
                                                     TURN ON LIGHT 2
                               SLN 2
00113 0 76000 0 00142
                               CLA ARBTRS
00114 0 50000 0 01344
00115 0 77100 0 00022
                               ARS 18
                               STO STATUS
00116 0 60100 0 01375
                               LXA ARBTRS+3
00117 0 53400 3 01344
                               TXL NUTAP,2
00120 -3 00000 2 00141
                               CLS ARBTRS
00121 0 50200 0 01344
                               ADD WORIGN
00122 0 40000 0 01341
                               STA PREP
00123 0 62100 0 00130
                               STA PREPB
00124 0 62100 0 00135
                               LXA 1MAND1+4
                                                     RECALL REMAINING VECTORS FOR ARBTRS
00125 0 53400 4 01334
                               RDR 4
00126 0 76200 0 00304
                               LDA STATUS
00127 0 46000 0 01375
                         PREP CPY 0+1
00130 0 70000 1 00000
                               TIX PREP+1+1
00131 2 00001 1 00130
                               TIX PREPA.4.1
00132 2 00001 4 00133
                          PREPA CLA 0+4
00133 0 50000 4 00000
                               TNZ PREPD
00134 -0 10000 0 00140
                                                     PLACE REMAINING ARBTRS IN ZERO SPOTS
                          PREPB CLS 0+2
60135 0 50200 2 00000
                                                     IN H AS NEGATIVE HEADINGS FOR
                          PREPC STO 0.4
 00136 0 60100 4 00000
                                TNX NUTAP,2,1
 00137 -2 00001 2 00141
                          PREPD TIX PREPA.4.1
 00140 2 00001 4 00133
                          NUTAP CLA RERYT
 00141 0 50000 0 00576
                                TSX DISTRB+4
 00142 0 07400 4 00700
                                LXA 1MAND1+4
 00143 0 53400 4 01334
                                LDQ NOUGHT
 00144 0 54000 0 01300
                                                      RESTORE H REGION
                          UNDO CLA 0+4
 00145 0 50000 4 00000
                                TPL UNDO+3
 00146 0 12000 0 00150
                                STQ 0.4
 00147 -0 60000 4 00000
                                TIX UNDO+4+1
 00150 2 00001 4 00145
                          CKMRK CLA MARK
 00151 0 50000 0 00554
                                TPL XYZ
 00152 0 12000 0 00154
                                                      END OF STAGE ERROR
                                HPR 56
 00153 0 42000 0 00070
                                SWT 1
 00154 0 76000 0 00161
                          XYZ
                                TRA BEGCY
 00155 0 02000 0 00157
                                HPR
 00156 0 42000 0 00000
                          BEGCY CLA BEGIN
 00157 0 50000 0 00560
                                STO MCRTRA
 00160 0 60100 0 01357
                                REW 2
 00161 0 77200 0 00222
                                CLA STSOL
 00162 0 50000 0 00564
                                TSX DISTRB,4
 00163 0 07400 4 00700
                                TRA JREAD
 00164 0 02000 0 00167
                                BST 3
 00165 0 76400 0 00203
                                                            701 ERROR TAPE 3
                                HPR 449
 00166 0 42000 0 00701
                                                      CALL IN NEXT ARBTRS
                           JREAD RTB 3
 00167 0 76200 0 00223
                                CPY INDEXS
  00170 0 70000 0 01361
                                CPY AORIGN
  00171 0 70000 0 01364
```

```
00172 7 74600 0 00333
                               100
00173 0 77100 0 00355
                               APS 237
                               ARS 237
00174 0 77100 0 00355
00175 -0 76000 0 00012
                               RTT
00176 0 02000 0 00165
                               TRA JREAD-2
                                                     DIVISION WANTED
00177 -0 53400 2 01364
                               LXD AORIGN,2
00200 2 00000 2 00214
                         WHERE TIX RCORD,2
                                                     LESS CURRENT DIVISION
00201 0 07400 4 00211
                               TSX SIZE,4
                                                     IF EQUAL CHECK STAGE AND MEMORY SIZE
00202 0 02000 0 00205
                               TRA COMP
                                                     DIVISION IN MEMORY
00203 0 42000 0 00126
                               HPR 86
                                                     126 STOP OUT OF PHASE
                        UGH
                                                     USE PIKUP TO TRY AGAIN
00204 0 02000 0 00203
                               TRA UGH
                         COMP
                               LXD WHERE,4
00205 -0 53400 4 00200
                               SXD NUMB , 2
00206 -0 63400 2 00207
                                                     DIVISION NUMBERS ARE EQUAL
00207 -3 00000 4 00250
                         NUMB TXL DIVNO,4
                                                     OUT OF PHASE
00210 0 02000 0 00203
                               TRA UGH
00211 0 50000 0 01301
                         SIZE CLA ONEADR
                                                     FOR LARGE MEMORY CHECK STAGES
                                                     STAGE NON ZERO OR MEMORY 4096
00212 -0 10000 4 00002
                               TN7 2,4
00213 0 02000 4 00001
                               TRA 1.4
                                                     STAGE IS 7ERO MEMORY IS 8192
                         RCORD TNX OFF,2,1
00214 -2 00001 2 00221
                                                     ADVANCE TAPE TO RECORD WANTED
00215 0 76200 0 00225
                               RTB 5
00216 0 70000 0 00000
                               CPY COMMON
00217 0 02000 0 00214
                               TRA RCORD
                                                     END OF FILE IS ERROR
00220 0 02000 0 00577
                               TRA HOLD
                                                     DELAY
00221 0 76600 0 00333
                         OFF
                               TOD
00222 0 77100 0 00355
                               ARS 237
                               ARS 237
00223 0 77100 0 00355
00224 -0 76000 0 00012
                               RTT
00225 0 76100 0 00000
                               NOP
00226 0 02000 0 00231
                               TRA RDDIV
00227 0 76400 0 00205
                         AGAIN BST 5
                                                     705 ERROR MATRIX TAPE HAS TAPE CHECK
00230 0 42000 0 00705
                               HPR 453
00231 0 74200 0 00225
                         RDDIV RTB 5
00232 0 5n000 0 01342
                               CLA TORIGN
                               STA VCPY
00233 0 62100 0 00235
00234 0 40000 0 01301
                               ADD ONEADR
                              CPY
00235 0 70000 0 00000
                         VCPY
00236 0 02000 0 00233
                               TRA VCPY-2
00237 0 02000 0 00537
                               TRA EOF
                                                     NO END OF FILE
00240 0 77100 0 00355
                               ARS 237
00241 0 77100 0 00355
                               ARS 237
00242 -0 76000 0 00012
                               RTT
                               TRA AGAIN
00243 0 02000 0 00227
                               TSX SIZE+4
00244 0 07400 4 00211
                                                     LEAVE TAPE AT CURRENT POSITION
00245 0 02000 0 00250
                               TRA DIVNO
00246 0 76400 0 00205
                               BST 5
00247 0 50200 0 00562
                               CLS 1DECR
00250 0 40000 0 01364
                         DIVNO ADD AORIGN
                               STD WHERE
                                                      STORE TAPE POSITION
00251 0 62200 0 00200
00252 0 50000 0 01341
                               CLA WORIGN
                               STO BORIGN
00253 0 60100 0 01365
                               CLA LDFLV
00254 0 50000 0 00567
                               TSX DISTRB,4
00255 0 07400 4 00700
00256 0 50000 0 00570
                               CLA FTRAN
                               TSX DISTRB,4
00257 0 07400 4 00700
                               CLA NOUGHT
00260 0 50000 0 01300
```

```
ADDRESS IS NO. LEFT TO DO
00350 0 40200 0 00562
                               SUB 1DECR
00351 0 40000 0 01301
                               ADD ONEADR
00352 0 60100 0 01344
                               STO ARBTRS
                                                        DECREMENT IS NO. DONE ON
                               ANA MASKAD
                                                        CURRENT RUN
00353 -0 32000 0 01320
00354 -0 10000 0 00046
                               THE NUCYC
                               SLW ARBTRS
00355 0 60200 0 01344
                               CLA DEC6
00356 0 50000 0 00555
                               REW 3
00357 0 77200 0 00223
00360 0 77200 0 00225
                               REW 5
00361 0 60100 0 01374
                               STO PROODE
00362 0 56000 0 01300
                               LDQ NOUGHT
                               LXA 1MAND1 +1
00363 0 53400 1 01334
00364 0 50000 0 00561
                         CLRH CLA FONYH
00365 0 40000 1 00000
                               ADD 0.1
                               TN7 CLRH+4
00366 -0 10000 0 00370
00367 -0 60000 1 00000
                               STQ 0.1
00370 2 00001 1 00364
                               TIX CLRH,1,1
                               CLA CHECK
00371 0 50000 0 00574
                               TSX DISTRB,4
00372 0 07400 4 00700
00373 0 50000 0 00575
                               CLA PRINT
                               TSX DISTRB,4
00374 0 07400 4 00700
00375 0 50000 0 01340
                               CLA VORIGN
                               ADD PRICEX
00376 0 40000 0 01346
00377 .0 62100 0 00402
                               STA VMH
                               ADD ONEADR
00400 0 40000 0 01301
                               STA VML
00401 0 62100 0 00403
00402 0 50000 0 00000
                          VMH
                              CLA
00403 0 56000 0 00000
                          VML
                              LDQ
                               STO HIMAXV
00404 0 60100 0 01372
00405 -0 60000 0 01373
                               STQ LOMAXV
                         SUMRY CLA STSOL
00406 0 50000 0 00564
00407 0 07400 4 00700
                               TSX DISTRB,4
00410 0 53400 1 01351
                               LXA STAGES,1
00411 -3 00000 1 00455
                               TXL P1.1.0
                                                     NO TAPES TO WRITE
00412 0 76400 0 00202
                               BST 2
                               BST 2
00413 0 76400 0 00202
                                                     MOVE TAPE 2 TO EOF
00414 0 76200 0 00222
                         ADVNC RTB 2
00415 0 70000 0 00000
                               CPY COMMON
00416 0 02000 0 00414
                               TRA ADVNC
00417 0 76600 0 00333
                               100
00420 0 76400 0 00202
                               BST 2
                               TRA BCKSP
00421 0 02000 0 00423
                                                     702 TAPE ERROR
00422 0 42000 0 00702
                               HPR 450
                         BCKSP BST 2
00423 0 76400 0 00202
00424 0 76200 0 00222
                               RTB 2
                               LXA NOUGHT +2
00425 0 53400 2 01300
00426 0 50000 0 01342
                               CLA TORIGN
00427 0 62100 0 00431
                               STA CPY2
                               ADD ONEADR
00430 0 40000 0 01301
00431 0 70000 0 00000
                         CPY2
                               CPY
                               TXI CPY2-2+2+1
00432 1 00001 2 00427
00433 0 02000 0 00450
                               TRA CPY4+3
00434 0 77100 0 00355
                               ARS 237
                               ARS 237
00435 0 77100 0 00355
00436 -0 76000 0 00012
                               RTT
```

```
STO AORIGN
00261 0 60100 0 01364
                               CLA CHUZR
00262 0 50000 0 00571
                              TSX DISTRB.4
00263 0 07400 4 00700
00264 0 50000 0 01360
                               CLA INDEXR
                                                    MATRIX SINGULAR
                              TTE SNGLR
00265 0 10000 0 00337
                               ARS 19
00266 0 77100 0 00023
                                                     FINISH CYCLE
                               ADD HORIGN
00267 0 40000 0 01337
                               STA NEWH
00270 0 62100 0 00277
00271 0 50000 0 00572
                               CLA ELIMN
                               TSX DISTRB,4
00272 0 07400 4 00700
                               CLA ITERNO
00273 0 50000 0 01350
                               ADD ONEADR
00274 0 40000 0 01301
                               STO ITERNO
00275 0 60100 0 01350
                               CLA INDEXS
00276 0 50000 0 01361
                               STO
00277 0 60100 0 00000
                                                     TEST FOR CYCLE PRINT
00300 0 76000 0 00164
                               SWT 4
                               TRA NEWH+4
00301 0 02000 0 00303
                               TRA CYCPR
00302 0 02000 0 00305
                                                     TEST FOR CYCLE PRINT
                               SWT 5
00303 0 76000 0 00165
                               TRA STORE
00304 0 02000 0 00331
                         CYCPR CLS ONEADR
00305 0 50200 0 01301
                               STO PRCODE
00306 0 60100 0 01374
                               LXA 2MAND2 +1
00307 0 53400 1 01335
                                                     SET T REGION TO ZERO
                               CLA NOUGHT
00310 0 50000 0 01300
                                                     FOR CYCLE PRINT
                         TZERO STO 0,1
00311 0 60100 1 00000
                               TIX TZERO +1 +1
00312 2 00001 1 00311
                               CLA PRINT
00313 0 50000 0 00575
00314 0 07400 4 00700
                               TSX DISTRB+4
00315 0 07400 4 00211
                               TSX SIZE+4
                               TRA BACKS
00316 0 02000 0 00320
                               TRA WHAT
00317 0 02000 0 00324
00320 0 76400 0 00205
                         BACKS BST 5
                               CLA WHERE
00321 0 50000 0 00200
00322 0 40200 0 00562
                               SUB 1DECR
                               STD WHERE
00323 0 62200 0 00200
                         WHAT CLA PRODE
00324 0 50000 0 01374
                               ADD FIVEAD
00325 0 40000 0 01304
                               TNZ STORE
00326 -0 10000 0 00331
                                                     122ERROR MATRIX SINGULAR
                               HPR 82
00327 0 42000 0 00122
                               TRA ENDST
00330 0 02000 0 00055
                         STORE CLA YTODR
00331 0 50000 0 00573
                               TSX DISTRB,4
00332 0 07400 4 00700
                                SWT 6
00333 0 76000 0 00166
                               TRA TALLY
00334 0 02000 0 00347
                                CLA DEC8
00335 0 50000 0 00557
                               TRA ENDST
00336 0 02000 0 00055
                         SNGLR CLS FIVEAD
00337 0 50200 0 01304
                                TRA CYCPR+1
00340 0 02000 0 00306
                                CLA MARK
00341 0 50000 0 00554
00342 0 12000 0 00344
                                TPL KA
                                                      CHECK PRINT ERROR
00343 0 42000 0 00077
                                HPR 63
                                CLA ITERNO
00344 0 50000 0 01350
                                                      DISPLAY ITERNO AND STAGES
 00345 0 56000 0 01351
                                LDQ STAGES
                                                      CHECK PRINT GOOD
                               HPR 8
 00346 0 42000 0 00010
                                                      ARBTRS IS NEGATIVE
 00347 0 50000 0 01344
                         TALLY CLA ARBTRS
```

```
00437 0 02000 0 00422
                               TRA BCKSP-1
00440 0 76400 0 00202
                               BST 2
00441 0 50000 0 00431
                               CLA CPY2
                               STA CPY4
00442 0 62100 0 00445
                                                     WRITE TAPE 3 AND
00443 0 76600 0 00323
                               WRS 211
                               WTB 4
                                                     WRITE TAPE 4 AS
00444 0 76600 0 00224
                                                     REVERSE OF TAPE 2
00445 0 70000 2 00000
                         CPY4
                              CPY 0.2
                               TIX CPY4,2,1
00446 2 00001 2 00445
00447 2 00001 1 00423
                               TIX BCKSP+1+1
                               WEF 3
00450 0 77000 0 00223
                               WEF 4
00451 0 77000 0 00224
00452 0 77200 0 00222
                               REW 2
                               REW 3
00453 0 77200 0 00223
00454 0 77200 0 00224
                               REW 4
                               CLA FORMC
                                                     COMPUTE SHADOW PRICES
00455 0 50000 0 00565
00456 0 07400 4 00700
                               TSX DISTRB.4
00457 0 50000 0 00566
                               CLA BTRAN
00460 0 07400 4 00700
                               TSX DISTRB +4
                               CLA WORIGN
00461 0 50000 0 01341
                               ADD 2MAND2
00462 0 40000 0 01335
00463 0 62100 0 00470
                               STA P2DR
00464 0 62100 0 00516
                               STA B2W
00465 0 53400 1 01335
                               LXA 2MAND2+1
                                                     STORE PI ON DRUM
00466 0 76600 0 00304
                               WDR 4
00467 0 46000 0 01325
                               LDA PDRORG
00470 0 70000 1 00000
                         P2DR CPY 0,1
00471 2 00001 1 00470
                               TIX P2DR,1,1
                                                     24 STOP -- SET SENSE SWITCH 2
00472 0 42000 0 00024
                               HPR 20
                               SWT 2
00473 0 76000 0 00162
                                                     SWITCH OFF -- END STAGE
00474 0 02000 0 00502
                               TRA END
                                                     CLEAR INDEX REGISTERS
                               LXA NOUGHT +7
00475 0 53400 7 01300
                               RDR 1
00476 0 76200 0 00301
                                                     RESET AND PUSH LOAD DRUM BUTTON
                               CPY 0
00477 0 70000 0 00000
                               CPY 1
                                                     TO READ NEXT MCR
00500 0 70000 0 00001
                               TRA 0
00501 0 02000 0 00000
                               CLA RERYT
00502 0 50000 0 00576
00503 0 07400 4 00700
                               TSX DISTRB,4
                                                     STORE SOLUTION AFTER END OF STAGE
00504 0 50000 0 00564
                               CLA STSOL
00505 0 07400 4 00700
                               TSX DISTRB,4
00506 0 42000 0 00026
                               HPR 22
00507 0 53400 7 01335
                               LXA 2MAND2 + 7
00510 0 76200 0 00304
                               RDR 4
                               LDA PDRORG
00511 0 46000 0 01325
00512 0 70000 4 00000
                         P2T
                               CPY 0,4
                               TIX P2T,4,1
00513 2 00001 4 00512
00514 0 76200 0 00304
                               RDR 4
00515 0 46000 0 01324
                               LDA BDRORG
                               CPY 0,2
00516 0 70000 2 00000
                               TIX B2W,2,1
00517 2 00001 2 00516
00520 0 50000 0 00556
                               CLA DECT
                               STO PRCODE
                                                     PRINT SHADOW PRICES
00521 0 60100 0 01374
                               CLA PRINT
00522 0 50000 0 00575
00523 0 07400 4 00700
                               TSX DISTRB,4
00524 0 76000 0 00141
                               SLN 1
00525 0 76000 0 00142
                               SLN 2
```

```
00526 0 76000 0 00143
                               SLN 3
00527 0 76000 0 00144
                               SLN 4
00530 0 42000 0 00027
                         DONE HPR 23
                                                     27 STOP JOB FINISHED
00531 0 02000 0 00530
                               TRA DONE
00532 -0 53400 1 01344
                         CONTD LXD ARBTRS +1
                                                     ENTRY FROM PIKUP
00533 -3 00000 1 00025
                               TXL START 1
                                                     ROUTINE
00534 0 74200 0 00223
                               RTB 3
00535 2 00001 1 00534
                               TIX CONTD+2,1,1
                               TRA START
00536 0 02000 0 00025
00537 0 42000 0 00121
                         EOF
                               HPR 81
                                                     121 ERROR MATRIX TAPE AT
00540 0 02000 0 00537
                               TRA EOF
                                                       END OF FILE
00541 0 53400 1 01335
                         VERIF LXA 2MAND2+1
00542 0 50000 0 00601
                                                     TOLERANCE IS 2 TO -26
                         CK1
                               CLA CKTOL
00543 -0 40000 1 00000
                         CK2
                               SBM 0.1
00544 0 60100 0 00554
                               STO MARK
00545 -0 12000 0 00553
                               TMI TUBIG
00546 2 00002 1 00542
                               TIX CK1 -1 -2
00547 0 50000 0 01374
                               CLA PRCODE
                                                     NO ERROR
00550 -0 10000 4 00001
                               TNZ 1.4
00551 0 74000 0 00161
                               SWT 1
00552 0 02000 4 00001
                               TRA 1.4
00553 0 02000 4 00002
                         TUBIG TRA 2,4
00554 0 00000 0 00000
                         MARK P7E
00555 +000000000006
                         DEC6 DEC 6
00556 +000000000007
                         DEC7 DEC 7
00557 +000000000010
                         DEC8 DFC 8
00560 0 02000 0 00532
                         BEGIN TRA CONTD
00561 -140000000000
                         FONYH OCT -14000000000
00562 0 00001 0 00000
                         1DECR P7E 0.0.1
00563 +000n00000001
                         LDATA DEC 1
00564 +0000000000002
                         STSOL DEC 2
00565 +000000000003
                         FORMC DEC 3
00566 +000n000000004
                         BTRAN DEC 4
00567 +000n000000006
                         LDFLV DEC 6
00570 +0000000000007
                         FTRAN DEC 7
00571 +000000000010
                         CHUZR DEC 8
00572 +000000000011
                         ELIMN DEC 9
00573 +000000000012
                         YTODR DEC 10
00574 +000000000013
                         CHECK DEC 11
00575 +000n00000014
                         PRINT DEC 12
                         RERYT DEC 13
00576 +0000000000015
00577 0 42000 0 00124
                         HOLD HPR 84
                                                     124 ERROR TAPE 5 ADVANCED TO
00600 0 02000 0 00577
                                                     END OF FILE
                               TRA HOLD
00601 +146m00000000
                         CKTOL OCT 146000000000
                                                     TOLERANCE FOR CHECK
                 00211
                               ORG SIZE
                                                     CHANGE FOR 8192 MEMORY
00211 0 50000 0 01351
                               CLA STAGES
                 00000
                               END
```

```
ZTABLE 00747,00747
                              ORG MCRORG
                00020
                                               DELTA J PRINT MCR
                              HED
                00020
                              CLM
00020 0 76000 0 00000
00021 0 62200 0 00257
                              STD 54ADR
                              RDR 2
00022 0 76200 0 00302
                              LXA SIX,7
00023 0 53400 7 00453
                       DRCPY1 CPY D+6.1
00024 0 70000 1 00431
00025 2 00001 1 00024
                              TIX DRCPY1,1,1
                       DRCPY2 CPY D+38,2
00026 0.70000 2 00471
                              TIX DRCPY2,2,1
00027 2 00001 2 00026
                              TSX SEPRNT,4
00030 0 07400 4 00224
                              TSX RITEB,4
00031 0 07400 4 00213
00032 0 53400 4 00453
                              LXA SIX.4
                        MOVER CLA LINE2+6,4
00033 0 50000 4 00273
                              STO D+6,4
00034 0 60100 4 00431
                              CLA LINE2+12,4
00035 0 50000 4 00301
                              STO D+38,4
00036 0 60100 4 00471
                              TIX MOVER 44.1
00037 2 00001 4 00033
                              TSX SEPRNT,4
00040 0 07400 4 00224
                               TSX RITEB,4
00041 0 07400 4 00213
                        MAIN LXA TWELVE . 5
00042 0 53400 5 00260
00043 0 76000 0 00000
                               CLM
                         CLEAR SLW D+12+4
00044 0 60200 4 00437
                               TIX CLEAR • 4 • 1
00045 2 00001 4 00044
                               CLA SAVEME
00046 0 50000 0 00246
                               STA KEVIN+1
00047 0 62100 0 00171
                       NEWONE SXD TRIPLE:1
00050 -0 63400 1 00261
                               TSX DELTAS +4
00051 0 07400 4 00301
                               TZE FINALE
00052 0 10000 0 00076
                               LXD TRIPLE . 2
00053 -0 53400 2 00261
00054 -0 50100 0 00255
                               ORA ABLNK
                               SLW D+12.2
00055 0 60200 2 00437
00056 0 53400 1 01302
                               LXA TWOADR . 1
                               SXD BBOX 1
00057 -0 63400 1 00457
                               CLA COMMON+6
00060 0 50000 0 00006
                               LDQ COMMON+7
00061 0 56000 0 00007
                               TSX DPFXP,4
00062 0 07400 4 00115
                               CLA KEVIN+1
00063 0 50000 0 00171
                               SUB ONEADR
00064 0 40200 0 01301
                               STA KEVIN+1
00065 0 62100 0 00171
                               LXD TRIPLE,1
00066 ~0 53400 1 00261
                               TIX NEWONE 11+4
00067 2 00004 1 00050
00070 0 53400 1 00453
                               LXA SIX,1
00071 0 50000 1 00437 SHIFTY CLA D+12+1
                               5TO D+38:1
00072 0 60100 1 00471
                               TIX SHIFTY 1 1
00073 2 00001 1 00071
                               TSX SEPRNT,4
00074 0 07400 4 00224
00075 0 02000 0 00042
                               TRA MAIN
                       FINALE LXD TRIPLE.1
00076 -0 53400 1 00261
                               CLA LINER
00077 0 50000 0 00264
                               STO D+12+1
00101 2 00001 1 00100
                               TIX FINALE+2 1 1
00102 0 53400 1 00453
                               LXA SIX.1
```

```
AGAIN CLA D+12+1
00103 0 50000 1 00437
00104 0 60100 1 00471
                               STO D+38,1
                               TIX AGAIN,1,1
00105 2 00001 1 00103
                               TSX SEPRNT,4
00106 0 07400 4 00224
                               SLN 1
00107 0 76000 0 00141
00110 0 76000 0 00142
                               SLN 2
00111 0 76000 0 00143
                               5LN 3
00112 0 76000 0 00144
                               SLN 4
                              HPR 32767
                         WHOA
00113 0 42000 0 77777
                               TRA WHOA
00114 0 02000 0 00113
                                                ASSUMES A 25.45 NUMBER
                         DPEXP SXD COMMON+4.4
00115 -0 63400 4 00004
                                                             IN AC. MQ WITH LIKE SIGNS
                               LRS 10
00116 0 76500 0 00012
                                                             PQ CLEAR
                               STO COMMON+2
00117 -0 60000 0 00002
                               SSP
00120 0 76000 0 00003
                               LDQ 10T08+1
00121 0 56000 0 00250
                               DVH 10T08
00122 0 22000 0 00247
00123 -0 60000 0 00000
                               STQ COMMON
                               CLA COMMON
00124 0 50000 0 00000
                               ADD 5TOM9
00125 0 40000 0 00251
                               STO COMMON
00126 0 60100 0 00000
                               LXA EIGHT , 2
00127 0 53400 2 00460
                               LXA ONFADR+1
00130 0 53400 1 01301
                               TSX CONVE,4
00131 0 07400 4 00154
                               TIX DPFXP+14,4,5
00132 2 00005 4 00133
                               SXD CBOXTW.4
00133 -0 63400 4 01377
00134 0 50000 0 00253
                               CLA POINT
                               LXD BBOX,4
00135 +0 53400 4 00457
                               TRA KEVIN
00136 0 02000 0 00170
00137 0 50000 0 00002
                               CLA COMMON+2
                               TZE ZEROF
00140 0 10000 0 00142
                               LXA NOUGHT 1
00141 0 53400 1 01300
00142 0 60200 0 00000
                         ZEROF SLW COMMON
                               LXA EIGHT , 2
00143 0 53400 2 00460
                               TSX CONVE,4
00144 0 07400 4 00154
                                                SET EXIT FROM
                               CLA COMMON+4
00145 0 50000 0 00004
                                                             DPFXP AND CONVE
                               SID CBOXIN
00146 0 62200 0 01377
                               LXD BBOX . 4
00147 -0 53400 4 00457
                               CLA COMMON+2
00150 - 0 50000 0 00002
00151 0 12000 0 00167
                               TPL KEVIN-1
                               CLA MINUS
00152 0 50000 0 00252
                               TRA KEVIN
00153 0 02000 0 00170
                                                             PRESENT XA AND XB AND
                         CONVE SXD CBOXTW,4
00154 -0 63400 4 01377
                                                                   PUT WORD TO BE
                         RSION LXD BBOX 4
00155 -0 53400 4 00457
                                                             CONVERTED IN COMMON
00156 0 56000 0 01300
                               LDO NOUGHT
                                                             PROGRAMMED
00157 0 50000 0 00000
                               CLA COMMON
                                                                   MULTIPLICATION
00160 0 76500 0 00002
                               LRS 2
                                                                   BY 10 LEAVING
00161 0 40000 0 00000
                               ADD COMMON
                                                                   DECIMAL DIGIT IN
00162 0 76500 0 00040
                               LRS 32
                                                                   THE ACCUMULATOR
00163 -0 60000 0 00000
                               STQ COMMON
                                                              TEST ZERO CHARACTER
                               TZE KEVIN-2
00164 0 10000 0 00166
                                                                   SET SWITCH TO STORE
                               LXA NOUGHT +1
00165 0 53400 1 01300
                                                                   ZERO FROM NOW ON
                               TRA KEVIN:1
00166 0 02000 1 00170
                                                              STORE BLANK CHARACTER
                               CLA BLANK
00167 0 50000 0 00254
                                                              POSITION CHARACTER
00170 0 76700 4 00040
                         KEVIN ALS 32.4
                                                              OR IT INTO PRINT LINE
                               OR5
00171 -0 60200 0 00000
```

```
KEEP
00172 1 00006 4 00173
                               TXI KEVIN+3,4,6
                                                                  THE
00173 -3 00040 4 00200
                               TXL KEVIN+8,4,32
                                                                  PRINT
                               CLA KEVIN+1
00174 0 50000 0 00171
                                                                  LINE
                               SUB ONEADR
00175 0 40200 0 01301
                                                                  MOVING
                               STA KEVIN+1
00176 0 62100 0 00171
                                                                  ALONG
                               LXA CONVE+4,4
00177 0 53400 4 00160
                                                             TEST FOR END OF WORD
00200 2 00001 2 00156
                               TIX CONVE+2,2,1
                                                             SAVE LINE POSITION
                               SXD BBOX:4
00201 +0 63400 4 00457
00202 -0 53400 4 01377
                                                             PREPARE TO BAIL OUT
                               LXD CBOXTW,4
                                                                  JUMP
00203 0 02000 4 00001
                               TRA 1,4
                                                             WRITE
00204 0 76600 0 00206
                         WIECD WID 6
                                                                  CYCLE
00205 0 53400 3 00453
                               LXA SIX,3
                                                                  PRINTING
                               CPY D+6.1
00206 0 70000 1 00431
                                                                  ON TAPE
00207 2 00001 1 00206
                               TIX WTBCD+2,1,1
                                                                  SIX
00210 0 70000 2 00471
                               CPY D+38.2
                                                                  AND
00211 2 00001 2 00210
                               TIX WTBCD+4,2,1
                                                                  RETURN
00212 0 02000 4 00001
                               TRA 1.4
                                                             SAVE RETURN ADDRESS
                         RITEB SXD TWELVE: 4
00213 -0 63400 4 00260
                                                STORE BLANK
00214 -0 50000 0 00264
                               CAL LINER
                                                                  CHARACTERS
00215 0 53400 1 00453
                               LXA SIX 1
                                                                  INPRINT
                               SLW D+6,1
00216 0 60200 1 00431
                                                                  LINE
                               SLW D+38.1
00217 0 60200 1 00471
                                                                  THEN
                               TIX RITEB+3,1,1
00220 2 00001 1 00216
                               TSX SEPRNT,4
00221 0 07400 4 00224
                                                              PREPARE TO BAIL OUT
                               LXD TWELVE,4
00222 -0 53400 4 00260
                                                                   JUMP
00223 0 02000 4 00001
                               TRA 1,4
                        SEPRNT SXD SAVEME: 4
00224 -0 63400 4 00246
                               LXD 54ADR,4
00225 -0 53400 4 00257
                               TIX SEPRNT+9,4,1
00226 2 00001 4 00235
                                                              PUT A ONE
                               CLA ONEADR
00227 0 50000 0 01301
                                                                   IN FIRST
                               LDQ D
00230 0 56000 0 00423
                                                                  WORD TO
00231 -0 77300 0 00006
                               RQL 6
                                                                  SKIP TO
                               LGL 30
00232 -0 76300 0 00036
00233 0 60200 0 00423
                                                                  NEW PAGE
                               SLW D
00234 0 53400 4 00257
                               LXA 54ADR,4
                               SXD 54ADR • 4
00235 -0 63400 4 00257
00236 0 76000 0 00163
                               SWT 3
00237 0 02000 0 00243
                               TRA SAVEME-3
                                                              WTITE REMOTE PRINTER
                               TSX WTBCD 4
00240 0 07400 4 00204
                               SWT 4
00241 0 76000 0 00164
                               TRA SAVEME+2
00242 0 02000 0 00244
                                                              WRITE DIRECT PRINTER
                               TSX BCD 4
00243 0 07400 4 00334
00244 -0 53400 4 00246
                               LXD SAVEME,4
00245 0 02000 4 00001
                               TRA 1.4
00246 0 00000 0 00424 SAVEME PZE D+1
00247 +000575360400
                         10T08 DEC 100000000
                               DEC 50000000
00250 +000276570200
00251 +000000000256
                        5TOM9 OCT 256
00252 +000000000040
                         MINUS OCT 40
00253 +0000000000033
                         POINT OCT 33
00254 +000000000060
                         BLANK OCT 60
00255 -200000000000
                         ABLNK OCT -200000000000
                         BBLNK OCT -202000000000
00256 -202000000000
                         54ADR P7E 54
00257 0 00000 0 00066
00260 0 00000 0 00014 TWELVE P7E 12
```

```
00261 0 00000 0 00000 TRIPLE P7F
00262 0 00000 0 00003
                         FORMC PZF 3
00263 0 00000 0 00004
                         BTRAN PZE 4
00264 606060606060
                         LINER BCD 1
00265 606060606041
                         LINEZ BCD 6
                                                   DELTA J
00266 606060606060
00267 606060242543
00270 632160416060
00271 606060606041
00272 606060606060
00273 606060242543
                               BCD 6
                                       DELTA J
                                                               DELTA J
00274 632160416060
00275 606060606041
00276 606060606060
00277 606060242543
00300 632160416060
00301 0 76000 0 00140 DELTAS SLF
00302 -0 63400 4 01372
                               SXD HIMAXV,4
00303 0 76100 0 00000
                               NOP
                                                     REPLACE WITH TRANSFER AFTER ENTRY
00304 0 50000 0 00330
                               CLA SKIP
00305 0 60100 0 00303
                               STO DELTAS+2
00306 0 76000 0 00165
                               SWT 5
00307 0 02000 0 00323
                               TRA PVECT
                                                     COMPUTE PRICING VECTOR
00310 0 76200 0 00304
                               RDR 4
                                                     RECALL PRICING VECTOR
00311 0 50000 0 01341
                               CLA WORIGN
                                                        FROM DRUM 4
00312 0 40000 0 01335
                               ADD 2MAND2
                                                        TO W STORAGE
00313 0 62100 0 00316
                               STA RECLP-1
00314 0 46000 0 01325
                               LDA PDRORG
00315 0 53400 1 01335
                               LXA 2MAND2,1
00316 0 70000 1 00000
                               CPY 0,1
00317 2 00001 1 00316
                         RECLP TIX RECLP-1,1,1
00320 0 76000 0 00144
                               SLN 4
00321 0 07400 4 00512
                               TSX DEJAY,4
00322 0 02000 0 00332
                               TRA EXITI
00323 0 50000 0 00262
                         PVECT CLA FORMO
00324 0 07400 4 00700
                               TSX DISTRB,4
00325 0 50000 0 00263
                               CLA BTRAN
00326 0 07400 4 00700
                               TSX DISTRB,4
00327 0 02000 0 00320
                               TRA RECLP+1
00330 0 02000 0 00331
                         SKIP TRA NEXTD
                                                    USED AFTER DEJAY IN MEMORY
00331 0 07400 4 00512
                        NEXTO TSX DEJAY,4
00332 -0 53400 4 01372
                         EXIT1 LXD HIMAXV,4
00333 0 02000 4 00001
                               TRA 1.4
00334 -0 63400 4 01377
                         BCD
                               SXD CBOXTW.4
00335 0 76600 0 00361
                               WPR
00336 0 50000 0 00423
                               CLA D
                                                             TEST FOR ONE
00337 -0 12000 0 00343
                               TMI BCD+7
                                                                 AND
00340 0 76000 0 00361
                               SPR 1
00341 0 36100 0 00462
                               ACL BLNKR
                                                                 SKIP TO
00342 0 60200 0 00423
                               SLW D
                                                                 NEWPAGE
00343 0 53400 1 00357
                               LXA BCD+19.1
                                                            CHOOSE LEFT CARD IMAGE
00344 0 53400 2 00362
                               LXA BCD+22.2
                                                             CLEAR
00345 0 76000 0 00000
                               CLM
                                                                 D+6
00346 0 60200 3 00552
                               SLW D+87.3
                                                                 THRU
00347 2 00001 2 00346
                               TIX REPET-5,2,1
                                                                 D+22
```

```
REFRESH
                               CAL D+23
00350 -0 50000 0 00452
                                                                   COLUMN INDICATOR
                               SLW D+27
00351 0 60200 0 00456
                                                              BEGINNING
                               LXA D+24.2
00352 0 53400 2 00453
                                                                   OF PRELIMINARY
                         REPET LDQ D+70,3
00353 0 56000 3 00531
                                                                   CARD IMAGE
                               SXD BBOX 12
00354 -0 63400 2 00457
                                                                   FORMATION
00355 0 76000 0 00000
                               CLM
                                                              PLACE ZONE PART
                               LGL 2
00356 -0 76300 0 00002
                                                                   IN INDEX B
                               PAX 64.2
00357 0 73400 2 00100
                                                              CLEAR ACCUMULATOR
00360 0 76000 0 00000
                               CLM
                                                              PLACE NUMERICAL PART
                               LGL 4
00361 -0 76300 0 00004
                                                                   ININDEX C
                               PAX 17,4
00362 0 73400 4 00021
                                                              FORM PRESENT
                                CAL D+27
00363 -0 50000 0 00456
                                                                   COLUMN OF
                                ORS D+86:3
00364 -0 60200 3 00551
                                                                   CARD IMAGE
                                ORS D+82,5
00365 -0 60200 5 00545
                                                              MOVE TO
                                ARS 1
00366 0 77100 0 00001
                                                                   NEXT COLUMN
                                SLW D+27
00367 0 60200 0 00456
                                                              CLOSE LOOP IF WORD
                                ANA D+26
00370 +0 32000 0 00455
                                                                   IS NOT FINISHED
                                TN7 REPET+2
00371 -0 10000 0 00355
                                                              MOVE TO NEXT WORD AND
                                LXD BBOX + 2
00372 -0 53400 2 00457
                                                                   TEST END OF HALF IMAGE
                                TIX REPET,2,1
00373 2 00001 2 00353
                               LXA TWOADR 12
00374 0 53400 2 01302
                                                                   8-4 WORD
                                CAL D+72.3
00375 -0 50000 3 00533
                                                                   AND 8-3 WORD
                                ORS D+74,1
00376 -0 60200 1 00535
                                                                   INTO
                                ORS D+80.3
00377 -0 60200 3 00543
                                                                   8.4. AND 3 WORDS
                                TIX ABCD+1,2,1
00400 2 00001 2 00375
                                                                   OBTAIN
                                CAL D+82,1
00401 -0 50000 1 00545
                                                                   THE
                                COM
00402 0 76000 0 00006
                                                                   0 S ROW
                                ANS D+83.1
00403 0 32000 1 00546
                                                                   OF
                                CAL D+82,1
00404 -0 50000 1 00545
                                                                   THE
                                ANA D+86.1
00405 -0 32000 1 00551
                                                                    CARD
                                ORA D+83.1
00406 -0 50100 1 00546
                                                                    IMAGE
                                SLW D+82.1
00407 0 60200 1 00545
                                                               OBTAIN
                                CAL D+84.1
00410 -0 50000.1 00547
                                                                    X
                                SEW D+83.1
00411 0 60200 1 00546
                                                                    AND Y
                                CAL D+85,1
00412 -0 50000 1 00550
                                                                    ROWS
                                SLW D+84,1
00413 0 60200 1 00547
                                                               GO BACK FOR RIGHT HALF IMAGE
                                TIX BCD+3,1,32
00414 2 00040 1 00344
                                LXA THELVE .1
00415 0 53400 1 00260
                                                                    LOOP
                               CPY D+21.1
                          COPY
00416 0 70000 1 00450
                                                                    FOR
00417 0 70000 1 00510
                                CPY D+53.1
                                                                    PRINTING
                                TIY COPY 1 1
 00420 2 00001 1 00416
                                                               PREPARE TO BAIL OUT
                                LXD CBOXTH:4
 00421 -0 53400 4 01377
                                                                    JUMP
                                TRA 1.4
 00422 0 02000 4 00001
                                                               SPACE FOR LEFT IMAGE
                                BSS 23
                  00423
                                                               LOC OF MINUS ZERO
                                OCT -00000000000000
 00452 -000000000000
                                                               LOC OF 6
                                OCT ANAMANAMANA
 10453 +000010000006
                                                               LOC OF 10
                                    D+1,0,10
 00454 0 00012 0 00424
                          TEN
                                                       MASK FOR COL INDICATOR
                                OCT 373737373737
 00455 +373737373737
 00456 0 00000 0 00000
 00457 0 00000 0 00000
                          BROX
                                                               100 OF 8
                                    8,0,20
 00460 0 00024 0 00010
                          EIGHT
                                                               TWO BLANKS OHLY
                          SEFNK OCT 00000000000000
 00461 +0000000006060
                          BLNKR OCT -170000000000
 00462 -17000000000
                                                               SPACE FOR RIGHT IMAGE
                                BSS 23
                  00463
                          DEJAY SYD CPOXON:4
 00512 -0 62400 4 01376
```

```
00513 -0 76000 0 00144
                              SLT 4
                              TRA RELOAD
                                                    CODE AND MATRIX IN MEMORY
00514 0 02000 0 00555
00515 0 02000 0 00520
                              TRA REDTP
00516 0 76400 0 00205
                              BST 5
                              HPR 469
                                                      ERROR STOP 725
00517 0 42000 0 00725
                        REDTP RTB 5
00520 0.76200 0.00225
00521 0 50000 0 01342
                              CLA TOPIGN
00522 0 62100 0 00524
                               STA REDTP+4
00523 0 40000 0 01301
                               ADD ONEADR
00524 0 70000 0 00000
                              CPY
00525 0 02000 0 00522
                               TRA REDTP+2
00526 0 02000 0 00557
                               TRA POSTP
00527 0 77100 0 00355
                               ARS 237
00530 0 77100 0 00355
                              ARS 237
00531 -0 76000 0 00012
                              RTT
00532 0 02000 0 00516
                               TRA REDTP-2
00533 0 50000 0 01342
                               CLA TORIGN
00534 0 76000 0 00006
                              COM
00535 0 73400 1 00000
                              PAX 0.1
00536 0 50000 1 77777
                              CLA 32767,1
00537 0 10000 0 00520
                              TZE REDTP
                                                    END OF RECORD
00540 0 12000 0 00542
                                                      TEST FOR PARTITIONS
                              TPL NEXTJ+1
00541 2 00002 1 00536
                        NEXTU TIX J.1.2
00542 0 60100 0 01361
                              STO INDEXS
00543 0 50000 1 00000
                                                      LOC A-J
                              CLA 0.1
00544 0 60100 0 01365
                              STO BORIGN
00545 0 76000 0 00006
                              COM
00546 0 73400 2 00000
                              PAX 0,2
00547 0 50000 0 01341
                              CLA WORIGN
00550 0 07400 4 00562
                              TSX CINPR,4
00551 -0 63400 1 01373
                              SXD LOMAXV.1
00552 0 50000 0 01361
                              CLA INDEXS
00553 -0 53400 4 01376
                        EXIT2 LXD CBOXON:4
00354 0 02000 4 00001
                              TRA 1,4
00555 -0 53400 1 01373
                       RELOAD LXD LOMAXV.1
                                                    RELOAD INDEX REGISTERS
00556 2 00002 1 00536
                              TIX J,1,2
00557 0 77200 0 00205
                        POSTP REW 5
00560 0 50000 0 01300
                              CLA NOUGHT
00561 0 02000 0 00553
                               TRA EXIT2
00562 -0 63400 2 00003
                         CINPR SXD COMMON+3,2
00563 -0 63400 4 01377
                              SXD CBOXTW.4
00564 0 40000 0 01335
                               ADD 2MAND2
00565 0 62100 0 00575
                              STA ELBET
00566 0 40000 0 01301
                              ADD ONEADR
00567 0 62100 0 00576
                              STA ELBET+1
00570 0 50000 0 01300
                              CLA NOUGHT
00571 0 60100 0 00006
                              STO COMMON+6
                              STO COMMON+7
00572 0 60100 0 00007
00573 0 50000 2 77777
                              CLA 32767.2
00574 -0 73400 4 00000
                              PDX 0.4
00575 0 50000 4 00000
                        ELBET CLA 0.4
00576 0 56000 4 00000
                              LDQ 0.4
00577 0 60100 0 00010
                               STO COMMON+8
00600 -0 60000 0 00011
                              STQ COMMON+9
00601 0 40000 0 00011
                               ADD COMMON+9
```

00602	0	10000	0	00631		TZE	NEXTI-2	SKIP ZERO MULTIPLICATION
00603		20000					0,2	
00604		76500				LRS		
00605		60100					COMMON+9	LO PRODUCT
00606							COMMON+10	
00607	Ο.	56000	0	00010		LDQ	COMMON+8	H1 PRODUCT
00610	0	20000	2	00000		MPY	0.2	
00611	0	14000	Ó	00612		TOV	CLROV	
00612	0	76300	0	00015	CLROV	LLS	13	
00613	0	40000	0	00011		ADD	COMMON+9	
00614		60100					COMMON+8	SUM HI PARTS
00615		14000				TOV	OVFLO	
00616		50000					COMMON+10	
00617							COMMON+10	
00620		40000					COMMON+10	SUM LO PARTS
00621		40000					COMMON+7	
00622		76500				LRS		
00623		14000					NEXTI-7	
00624		40000					COMMON+8	
00625		40000					COMMON+6	
00626		14000					OVFLO	
00627		60100					COMMON+6	NEW SUM
00630							COMMON+7	
00631	0						32767 • 2	
00632							NEXTI+1	
00633		00002			NEXTI			
00634		50000					COMMON+6	
00635		10000					OVFLO-7	
00636		76000			•	CLM		
	-0			01301			ONEADR	•
00640		60100					COMMON+8	
00641		76700				ALS		
00642		40000					COMMON+7	
00643		76500				LRS		
00644		40200					COMMON+8	
00645		40000					COMMON+6	
00646		76300				LLS		
00647							COMMON+6	
00650							COMMON+7	
		53400					COMMON+3 • 2	
00652							CBOXTW 4	
00653				00654			OVFLO-1	
00654		02000		00001			1,4	
00655		42000		00250	OVFLO	HPR		
00656	0	05000	O				OVFLO	ERROR STOP 250
				00020		END	MCRORG	

LINEAR PROGRAMMING DATA ASSEMBLY CODE.

```
COMMON BSS 16
                 00000
                               ORG 16
                 00020
                 00020
                        MCRORG BSS 376
                               ORG 704
                 01300
                                                        FIXED CONSTANTS-STANDARD THRUOUT
                        NOUGHT DEC
01300 +000000000000
                        ONEADR DEC 1
01301 +000000000001
01302 +0000000000002
                        TWOADR DEC 2
                        THREEA DEC 3
01303 +0000000000003
01304 +000000000005
                        FIVEAD DEC 5
                        128ADR DEC 128
01305 +000000000200
                        133ADR DEC 133
01306 +000000000205
                        141ADR DEC 141
01307 +0000000000215
                        TRUHAF OCT 20000000000
01310 +200000000000
                        INFINY OCT 37777777777
01311 +37777777777
                        27CHAR OCT 033000000000
01312 +033000000000
                         54CHAR OCT 066000000000
01313 +066000000000
                        FLZERO OCT 146000000000
01314 +146000000000
01315 +201400000000
                        FLUNTY OCT 201400000000
                        MASKCH OCT 377000000000
01316 +377000000000
                        MASKFR OCT -00077777777
01317 -000777777777
                        MASKAD OCT 000000077777
01320 +000000077777
                        MASKNA OCT -377777700000
01321 -377777700000
                        MASKDE OCT 077777000000
01322 +077777000000
01323 +000000002000
                        DPFXUN DEC 1024
                                                        ORIGIN ON DRUM 4 OF RT-HAND SIDE
                        BDRORG DEC 1536
01324 +000000003000
                                                                             PRICING VECTOR
                        PDRORG DEC 1024
01325 +000000002000
                                                                             PLP CHANGE VECT
01326 +000000001000
                        EDRORG DEC 512
                                                        ORIGIN ON DRUM 1 OF CONSTANTS
                         KDRORG DEC 488
01327 +000000000750
                                                                             H-REGION
                        HDRORG DEC 552
01330 +000000001050
                                                                             V-REGION
                        VDRORG DEC 808
01331 +000000001450
                        BORROW OCT 031400000000
01332 +031400000000
                        SPAREF DEC 5120
01333 +000000012000
                                                        PROBLEM CONSTANTS-VALUES PROVIDED
01334 +000000000000
                        1MAND1 DEC
                                                                BY DATA ASSEMBLY
                         2MAND2 DEC
01335 +000000000000
                         2MAN2D DEC
01336 +0000000000000
01337 0 00000 0 01400
                        HORIGN PZE 768
01340 +000000000000
                         VORIGN DEC
                         WORIGN DEC
01341 +000000000000
01342 0 00000 0 04000
                        TORIGN PZE 2048
                         FAZTYP DEC
01343 +0000000000000
                         ARBTRS DEC
01344 +000000000000
                         FAZNUM DEC
01345 +000000000000
                         PRICEX DEC
01346 +000000000000
01347 +0000000000000
                         FEASYX DEC
                         ITERNO DEC
01350 +000000000000
                         STAGES DEC
01351 +000000000000
                         DR3LIM DEC
01352 +000000000000
                         DR3END DEC 2042
01353 +000000003772
                         TPALTR PZE 0,0,1
01354 0 00001 0 00000
                         SCALHI DEC 1024
01355 +000000002000
01356 +000000000000
                         SCALLO DEC
01357 0 02000 0 00020
                         MCRTRA TRA MCRORG
                         INDEXR DEC
01360 +000000000000
```

```
01361 +000000000000
                       INDEXS DEC
                       SPARP1 DEC
01362 +000000000000
                       SPARP2 DEC
01363 +000000000000
                                                      FIXED LOCATIONS-ZERO INITIALLY
                       AORIGN DEC
01364 +000000000000
                       BORIGN DEC
01365 +000000000000
                       HISCAR DEC
01366 +000000000000
                       LOSCAR DEC
01367 +0000000000000
                       HIBEST DEC
01370 +0000000000000
                       LOBEST DEC
01371 +000000000000
                       HIMAXV DEC
01372 +000000000000
                       LOMAXV DEC
01373 +0000000000000
                       PRCODE DEC
01374 +0000000000000
                        STATUS DEC
01375 +000000000000
                        CBOXON DEC
01376 +0000000000000
                        CBOXTW DEC
01377 +0000000000000
                              ORG MCRORG
                 00020
                       ENDSTG HTR 4095
00020 0 00000 0 07777
                         CURT BCD 1CURTAI
00021 236451632131
                         EOF
                              BCD 1EOF
00022 254626606060
                              BCD 1EOR
00023 254651606060
                         EOR
00024 0 00000 0 00000
                        TRAPRC
                        MIZER MZE
00025 -0 00000 0 00000
                        HALFST PZE 2040
00026 0 00000 0 03770
00027 0 00000 0 00000
                        NEGSUM
                        BHEDNG HTR HORIGN
00030 0 00000 0 01337
00031 0 00000 0 00000
                        SUMROW
                        HEDADR PZE ROW+0+12
00032 0 00014 0 00075
00033 0 00042 0 01334
                        PARADR PZE 1MAND1+0+34
                        NOMATR BCD INO MAT
00034 454660442163
                        MATRIX BCD 1MATRIX
00035 442163513167
                         NEXTB BCD INEXT B
00036 452567636022
                        FIRSTB BCD 1FIRST
00037 263151626360
00040 0 00000 0 00000
                        SENSES
                         POSIT
00041 0 00000 0 00000
00042 0 00000 0 00004
                        FOURAD HTR 4
00043 0 00000 0 00006
                        SIXADR HTR 6
                         SEVEN HTR 7
00044 0 00000 0 00007
                        TENADR HTR 10
00045 0 00000 0 00012
 00046 0 00000 0 00013
                        ELEVEN HTR 11
                        TWELVE HTR 12
00047 0 00000 0 000/4
 00050 +000000000017
                         OCT17 DEC 15
                        BLANKK OCT 60
00051 +0000000000060
                         STEST DEC 32
 00052 +0000000000040
                        ROUNDR DEC 500000
 00053 +000001720440
                         10T06 DEC 1000000
 00054 +000003641100
                               DEC 5000000,5000000,50000,5000,500,50,5
 00055 +000023045500
 00056 +000001720440
 00057 +000000141520
 00060 +000000011610
 00061 +000000000764
 00062 +000000000062
 00063 +000000000005
                        00064 +000000000000
 00065 +000046113200
 00066 +000003641100
```

```
00067 +000000303240
00070 +000000023420
00071 +000000001750
00072 +000000000144
00073 +000000000012
                        POWTEN DEC 1
00074 +000000000001
                               BSS 14
                        ROW
                 00075
                       START3 CLA ROW
00113 0 50000 0 00075
                               SUB NOMATR
00114 0 40200 0 00034
00115 0 10000 0 00464
                               TZE KICKRC+3
                               CLM
00116 0 76000 0 00000
                               SLW COMMON+6
00117 0 60200 0 00006
                               LDQ SENSES
00120 0 56000 0 00040
00121 -0 77300 0 00041
                               RQL 33
                               TQP SETSUM
00122 0 16200 0 00124
                               TRA SETORG
00123 0 02000 0 00134
                       SETSUM CLA SUMROW
00124 0 50000 0 00031
00125 0 76700 0 00001
                               ALS 1
                               STO SUMROW
00126 0 60100 0 00031
00127 0 40200 0 01335
                               SUB 2MAND2
                               ALS 18
00130 0 76700 0 00022
00131 0 76000 0 00002
                               CHS
                               ADD SUMROW
00132 0 40000 0 00031
                               STO SUMROW
00133 0 60100 0 00031
                       SETORG TSX SELECT,4
00134 0 07400 4 00602
                               SLN 3
00135 0 76000 0 00143
                               CLA TORIGN
00136 0 50000 0 01342
                               STA SETAL
00137 0 62100 0 00272
00140 0 76000 0 00000
                               CLM
                               SLW NEGSUM
00141 0 60200 0 00027
                               CLA ENDSTG
00142 0 50000 0 00020
                               STA RESETJ
00143 0 62100 0 00170
                         TROWT TSX READIN.4
00144 0 07400 4 00606
                               TSX SETLIN.4
00145 0 07400 4 00756
00146 0 50000 0 00075
                               CLA ROW
                               SUB CURT
00147 0 40200 0 00021
                               TZF MINUMB
00150 0 10000 0 00440
                               CLA ROW
00151 0 50000 0 00075
                               SUB EOR
00152 0 40200 0 00023
00153 0 10000 0 00461
                               TZE KICKRC
                               CLA ROW
00154 0 50000 0 00075
                               SUB EOF
00155 0 40200 0 00022
                               TNZ RESETJ-7
00156 -0 10000 0 00161
                               SLN 4
00157 0 76000 0 00144
                               TRA RESETJ-1
00160 0 02000 0 00167
                               SLN 2
00161 0 76000 0 00142
                               LXA SIXADR:1
00162 0 53400 1 00043
                               TSX CONVER.4
00163 0 07400 4 00763
                               CAS COMMON+6
00164 0 34000 0 00006
                               TRA RESETJ-1
00165 0 02000 0 00167
                               TRA GETI
00166 0 02000 0 00227
                               STO COMMON+6
00167 0 60100 0 00006
                        RESETJ STO 4095
00170 0 60100 0 07777
                               CLA RESETJ
00171 0 50000 0 00170
                               SUB ONEADR
00172 0 40200 0 01301
```

```
00173 0 62100 0 00177
                               STA RESETJ+7
00174 0 07400 4 00323
                               TSX SUMMER, 4
00175 0 50000 0 00272
                               CLA SETAL
00176 -0 32000 0 01320
                               ANA MASKAD
00177 0 60100 0 07776
                               STO 4094
00200 0 40200 0 01301
                               SUB ONEADR
00201 0 62100 0 00203
                               STA NEGATE
00202 -0 50000 0 00025
                               CAL MIZER
00203 -0 60200 0 00000
                        NEGATE ORS
00204 0 50000 0 01302
                               CLA TWOADR
00205 0 40000 0 00024
                               ADD TRAPRO
00206 0 60100 0 00024
                               STO TRAPRC
00207 0 40000 0 01335
                               ADD 2MAND2
                               SUB HALFST
00210 0 40200 0 00026
00211 -0 76000 0 00144
                               SLT 4
00212 -0 12000 0 00224
                               TMI GETI-3
                               TSX RITTAP,4
00213 0 07400 4 00355
00214 0 50000 0 00006
                               CLA COMMON+6
00215 0 10000 0 00463
                               TZE KICKRC+2
00216 0 56000 0 00076
                               LDQ ROW+1
00217 0 50000 0 00006
                               CLA COMMON+6
00220 0 60100 0 07777
                               STO 4095
00221 0 50000 0 01342
                               CLA TORIGN
00222 0 60100 0 07776
                               STO 4094
00223 0 02000 0 00204
                               TRA NEGATE+1
00224 0 50000 0 00170
                               CLA RESETJ
00225 0 40200 0 01302
                               SUB TWOADR
00226 0 62100 0 00170
                               STA RESETJ
00227 0 53400 1 01303
                         GETI LXA THREEA 1
00230 0 50000 0 00272
                               CLA SETAL
00231 0 40000 0 01301
                               ADD ONEADR
00232 0 62100 0 00257
                               STA SETIN
00233 0 07400 4 00763
                               TSX CONVER,4
00234 -0 12000 0 00237
                              TMI TLIM+3
00235 0 76700 0 00001
                               ALS 1
00236 0 02000 0 00250
                               TRA SETIN-7
00237 0 40000 0 00246
                               ADD 55ADR
00240 -0 10000 0 00253
                               TNZ SETIN-4
00241 0 50000 0 01375
                               CLA STATUS
00242 0 40200 0 01301
                               SUB ONEADR
00243 0 60100 0 01375
                               STO STATUS
00244 0 50000 0 00247
                               CLA LIMX
00245 0 02000 0 00257
                               TRA SETIN
00246 0 00000 0 00067
                         55ADR PZE 55
00247 2 00000 0 00001
                         LIMX PTW 1
00250 0 60100 0 00004
                               STO COMMON+4
00251 0 40200 0 01335
                               SUB 2MAND2
00252 -0 12000 0 00254
                               TMI SETIN-3
00253 0 42000 0 07700
                               HPR 4032
00254 0 76700 0 00022
                               ALS 18
00255 0 76000 0 00002
                               CHS
00256 0 40000 0 00004
                               ADD COMMON+4
00257 0 60100 0 00000
                         SETIN STO
00260 0 60100 0 00004
                               STO COMMON+4
00261 0 07400 4 00602
                               TSX SELECT:4
```

```
00262 -0 50000 0 00040
                               CAL SENSES
00263 0 76700 0 00001
                               ALS 1
00264 -0 76000 0 00001
                               PRT
00265 0 02000 0 00270
                               TRA SETAL-2
00266 0 07400 4 01164
                               TSX SPECIL:4
00267 0 02000 0 00271
                               TRA SETAL-1
00270 0 07400 4 01107
                               TSX DTOBCV,4
00271 0 76300 0 00026
                               LLS 22
00272 0 60100 0 00000
                         SETAL STO
00273 0 14000 0 00274
                               TOV SETAL+2
00274 0 60100 0 00000
                               STO COMMON
00275 0 50000 0 00004
                               CLA COMMON+4
00276 0 40200 0 00031
                               SUB SUMROW
00277 0 12000 0 00314
                               TPL SETAL+18
00300 0 50000 0 00004
                               CLA COMMON+4
00301 0 77100 0 00001
                               ARS 1
00302 0 40000 0 01337
                               ADD HORIGN
00303 0 62100 0 00304
                               STA CHEKH
00304 0 50000 0 00000
                         CHEKH CLA
00305 0 40200 0 01301
                               SUB ONEADR
00306 0 12000 0 00314
                               TPL SETAL+18
00307 0 50200 0 00000
                               CLS COMMON
00310 0 40000 0 00027
                               ADD NEGSUM
00311 0 60100 0 00027
                               STO NEGSUM
00312 -0 14000 0 00314
                               TNO SETAL+18
00313 0 42000 0 06666
                               HPR 3510
00314 0 50000 0 00272
                               CLA SETAL
00315 0 40000 0 01302
                               ADD TWOADR
00316 0 62100 0 00272
                               STA SETAL
00317 0 50000 0 01302
                               CLA TWOADR
00320 0 40000 0 00024
                               ADD TRAPRC
00321 0 60100 0 00024
                               STO TRAPRO
00322 0 02000 0 00144
                               TRA TROWT
00323 0 50000 0 00040
                       SUMMER CLA SENSES
00324 0 77100 0 00002
                               ARS 2
00325 0 76000 0 00001
                               LBT
00326 0 02000 0 00330
                               TRA SUMMER+5
00327 0 02000 4 00001
                               TRA 1,4
00330 -0 76000 0 00143
                               SLT 3
00331 0 02000 0 00333
                               TRA SUMMER+8
00332 0 02000 4 00001
                               TRA 1,4
00333 0 50000 0 00027
                               CLA NEGSUM
00334 0 10000 4 00001
                               TZE 1.4
00335 0 50000 0 00272
                               CLA SETAL
00336 0 62100 0 00344
                               STA MOVER
00337 0 40000 0 01301
                               ADD ONEADR
00340 0 62100 0 00346
                               STA MOVER+2
00341 0 40000 0 01301
                               ADD ONEADR
00342 0 62100 0 00272
                               STA SETAL
00343 0 50000 0 00027
                               CLA NEGSUM
00344 0 60100 0 00000
                         MOVER STO
00345 0 50000 0 00031
                               CLA SUMROW
00346 0 60100 0 00000
                               STO
00347 0 76000 0 00000
                               CLM
00350 0 60200 0 00027
                               SLW NEGSUM
```

```
00351 0 50000 0 01302
                                CLA TWOADR
 00352 0 40000 0 00024
                                ADD TRAPRC
 00353 0 60100 0 00024
                                STO TRAPRC
 00354 0 02000 4 00001
                                TRA 1.4
 00355 0 76600 0 00225
                        RITTAP WTB 5
 00356 0 50000 0 00170
                                CLA RESETJ
 00357 -0 32000 0 01320
                                ANA MASKAD
 00360 0 76000 0 00002
                                CHS
 00361 0 40000 0 00020
                                ADD ENDSTG
                                                        SAVE
 00362 0 40000 0 01301
                                ADD ONEADR
 00363 0 60100 0 00000
                                STO COMMON
                                                          INCREMENT
 00364 0 50000 0 00020
                                CLA ENDSTG
 00365 0 62100 0 00371
                                STA OTHER1
 00366 0 50000 0 00170
                                CLA RESETJ
 00367 0 40000 0 01302
                                ADD TWOADR
00370 0 62100 0 00417
                                STA OTHER2
00371 0 70000 0 00000
                        OTHER1 CPY
00372 0 50000 0 00371
                                CLA OTHER1
 00373 0 40200 0 01301
                               SUB ONEADR
00374 0 62100 0 00377
                               STA OTHER1+6
003,75 0 62100 0 00401
                               STA OTHER1+8
00376 0 62100 0 00402
                               STA OTHER1+9
00377 0 50000 0 00000
                               CLA
00400 0 40000 0 00000
                               ADD COMMON
00401 0 60100 0 00000
                               STO
00402 0 70000 0 00000
                               CPY
00403 0 50000 0 00371
                               CLA OTHER1
00404 0 40200 0 01302
                               SUB TWOADR
00405 0 62100 0 00371
                               STA OTHER1
00406 0 40200 0 00417
                               SUB OTHER2
00407 0 12000 0 00371
                               TPL OTHER1
00410 0 70000 0 01300
                               CPY NOUGHT
00411 0 50000 0 01342
                               CLA TORIGN
00412 0 40000 0 01301
                               ADD ONEADR
00413 0 62100 0 00417
                               STA OTHER2
00414 0 50000 0 00272
                               CLA SETAL
00415 0 40000 0 01301
                               ADD ONEADR
00416 0 62100 0 00371
                               STA OTHER1
00417 0 70000 0 00000
                        OTHER2 CPY
00420 0 50000 0 00417
                               CLA OTHER2
00421 0 40200 0 01301
                               SUB ONEADR
00422 0 62100 0 00423
                               STA OTHER2+4
00423 0 70000 0 00000
                               CPY
00424 0 40000 0 01303
                               ADD THREEA
00425 0 62100 0 00417
                               STA OTHER2
00426 0 40200 0 00371
                               SUB OTHER1
00427 -0 12000 0 00417
                               TMI OTHER2
00430 0 50000 0 01342
                               CLA TORIGN
00431 0 62100 0 00272
                               STA SETAL
00432 0 50000 0 00020
                               CLA ENDSTG
00433 0 62100 0 00170
                               STA RESETJ
00434 0 76000 0 00000
                               CLM
00435 0 60200 0 00024
                               SLW TRAPRC
00436 0 76600 0 00333
                               IOD
00437 0 02000 4 00001
                               TRA 1.4
```

```
MINUMB CLA RESETJ
00440 0 50000 0 00170
                               STA MINER
00441 0 62100 0 00454
                               SUB ONEADR
00442 0 40200 0 01301
                               STA MINER+2
00443 0 62100 0 00456
                               SUB ONEADR
00444 0 40200 0 01301
                               STA RESETJ
00445 0 62100 0 00170
                               CLA TWOADR
00446 0 50000 0 01302
                               ADD TRAPRC
00447 0 40000 0 00024
                               STO TRAPRC
00450 0 6n100 0 00024
                               LDQ ROW+1
00451 0 56000 0 00076
                               LXA THREEA.1
00452 0 53400 1 01303
                               TSX CONVER:4
00453 0-07400 4 00763
                         MINER STO
00454 0 60100 0 00000
                               CLM
00455 0 76000 0 00000
                               SLW
00456 0 60200 0 00000
                               TSX SELECT:4
00457 0 07400 4 00602
                               TRA TROWT
00460 0 02000 0 00144
                        KICKRC SLN 4
00461 0 76000 0 00144
00462 0 02000 0 00457
                               TRA KICKRC-2
                               WEF 5
00463 0 77000 0 00205
00464 0 77200 0 00205
                               REW 5
                         PUKHV LDQ SENSES
00465 0 56000 0 00040
                               RQL 3
00466 -0 77300 0 00003
                               TQP PUMATR-6
00467 0 16200 0 00503
00470 0 76600 0 00341
                               WPU
                               CLA PARADR
00471 0 50000 0 00033
00472 0 76500 0 00000
                               LRS
00473 0 07400 4 01046
                               TSX BPUNCH + 4
                               CLA BHEDNG
00474 0 50000 0 00030
                               LRS
00475 0 76500 0 00000
                               TSX BPUNCH, 4
00476 0 07400 4 01046
                               CLA 2MAN2D
00477 0 50000 0 01336
00500 0 40000 0 01340
                               ADD VORIGN
                               LRS
00501 0 76500 0 00000
                               TSX BPUNCH, 4
00502 0 07400 4 01046
                               WPU
00503 0 76600 0 00341
                               CLS WORIGN
00504 0 50200 0 01341
                               LRS 35
00505 0 76500 0 00043
                               CLA 2MAN2D
00506 0 50000 0 01336
                               ADD VORIGN
00507 0 40000 0 01340
                               TSX BPUNCH,4
00510 0 07400 4 01046
                        PUMATR LDQ SENSES
00511 0 56000 0 00040
00512 -0 77300 0 00002
                               RQL 2
                               TQP ENDDA-3
00513 0 16200 0 00542
                               TRA REEDT
00514 0 02000 0 00517
00515 0 76400 0 00205
                               BST 5
                                                     10421 ERROR INDICATION
                               HPR 4369
00516 0 42000 0 10421
                         REEDT RTB 5
00517 0 76200 0 00225
                               LXA NOUGHT +4
00520 0 53400 4 01300
                               CLA TORIGN
00521 0 50000 0 01342
                               STA REEDT+5
00522 0 62100 0 00524
                               ADD ONEADR
00523 0 40000 0 01301
                               CPY
00524 0 70000 0 00000
                               TXI REEDT+3,4,1
00525 1 00001 4 00522
00526 0 02000 0 00542
                               TRA ENDDA-3
```

```
00527 0 76600 0 00333
                               IOD
00530 0 77100 0 00355
                               ARS 237
00531 0 77100 0 00355
                               ARS 237
00532 -0 76000 0 00012
                               RTT
00533 0 02000 0 00515
                               TRA REEDT-2
00534 0 76600 0 00341
                               WPU
00535 -0 75400 4 00000
                               PXD 0.4
00536 -0 50100 0 01342
                               ORA TORIGN
00537 0 76500 0 00000
                               LRS.
00540 0 07400 4 01046
                               TSX BPUNCH, 4
00541 0 02000 0 00517
                               TRA REEDT
00542 0 76600 0 00341
                               WPU
00543 0 70000 0 01300
                               CPY NOUGHT
00544 0 70000 0 00025
                               CPY MIZER
00545 0 77200 0 00205
                         ENDDA REW 5
00546 0 76200 0 00303
                         PUID
                              RDR 3
00547 +0 53400 4 00032
                               LXD HEDADR . 4
00550 0 70000 4 00111
                               CPY ROW+12,4
00551 2 00001 4 00550
                               TIX PUID+2,4,1
00552 0 50200 0 01342
                               CLS TORIGN
00553 0 76500 0 00043
                               LRS 35
00554 0 50000 0 00032
                               CLA HEDADR
00555 0 07400 4 01046
                               TSX BPUNCH, 4
00556 0 76000 0 00140
                               SLF
00557 0 76200 0 00321
                               RCD
                                                     PUSH LOAD BUTTON
00560 0 70000 0 00000
                               CPY 0
00561 0 70000 0 00001
                               CPY 1
00562 0 02000 0 00000
                               TRA O
                 00565
                               ORG 373
00565 0 53400 4 00571
                        STASH2 LXA STASH2+4,4
00566 2 00113 4 00567
                               TIX STASH2+2,4,ROW+14
00567 0 76600 0 00302
                               WDR 2
00570 0 46000 0 01325
                               LDA PDRORG
00571 0 70000 4 00327
                               CPY REC/L2+5,4
00572 2 00001 4 00571
                               TIX STASH2+4,4,1
00573 0 02000 0 77754
                               TRA 32748
00574 0 53400 4 00577
                         STASH LXA STASH+3,4
                                                       STORE SECOND ON DRUM
00575 2 00113 4 00576
                               TIX STASH+2,4,ROW+14
00576 0 76600 0 00302
                               WDR 2
00577 0 70000 4 00547
                               CPY ENDDA+2,4
00600 2 00001 4 00577
                               TIX STASH+3,4,1
00601 0 02000 0 77754
                               TRA 32748
                                                       RETURN TO CARD READER
00602 0 50000 0 00040
                       SELECT CLA SENSES
00603 0 12000 4 00001
                               TPL 1,4
00604 0 76200 0 00321
                               RDS 209
00605 0 02000 4 00001
                               TRA 1,4
00606 -0 63400 4 01377
                        READIN SXD CBOXTW+4
00607 0 56000 0 00040
                               LDQ SENSES
00610 0 16200 0 00613
                               TQP READIN+5
00611 0 07400 4 00616
                               TSX RDCARD,4
00612 0 02000 0 00614
                               TRA READIN+6
00613 0 07400 4 01241
                               TSX RDBCDT,4
00614 -0 53400 4 01377
                               LXD CBOXTW,4
00615 0 02000 4 00001
                               TRA 1,4
00616 -0 63400 4 01376 RDCARD SXD CBOXON.4
```

```
LXA THREEA,4
00617 0 53400 4 01303
                               SXD PAUL,4
00620 -0 63400 4 00636
00621 -0 63400 4 00666
                               SXD MARTY,4
00622 0 76000 0 00000
                               CLM
                               LXA JOHN+3,1
00623 0 53400 1 00650
00624 0 60200 1 00113
                               SLW ROW+14,1
00625 2 00001 1 00624
                               TIX HAL-3,1,1
00626 0 53400 4 00047
                               LXA TWELVE,4
                               CPY COMMON
00627 0 70000 0 00000
00630 0 02000 0 00632
                               TRA HAL+3
                               TRA EDITH+4
00631 0 02000 0 00727
                               SXD TWELVE,4
00632 -0 63400 4 00047
00633 -0 50000 4 00745
                               CAL NINES+12,4
00634 0 60100 0 00755
                               STO 9TOY
                               CPY COMMON+1
00635 0 70000 0 00001
                         PAUL TXL TED,4,3
00636 -3 00003 4 00707
                               CAL COMMON
00637 -0 50000 0 00000
                               ORS ROW+6
00640 -0 60200 0 00103
                               CAL COMMON+1
00641 -0 50000 0 00001
                               ORS ROW+7
00642 -0 60200 0 00104
00643 0 56000 0 00000
                               LDQ COMMON
                               LXA DAVE + 4
00644 0 53400 4 00656
00645 0 53400 1 00043
                         JOHN LXA SIXADR 1
00646 0 76000 0 00000
                               CLM
00647 -0 76300 0 00003
                               LGL 3
                               PAX 14,2
00650 0 73400 2 00016
00651 0 50000 0 00755
                               CLA 9TOY
00652 -0 32000 2 00754
                               ANA MASK+7,2
00653 0 76700 0 00022
                               ALS 18
                               ORS ROW+22.5
00654 -0 60200 5 00123
                               LGL 3
00655 -0 76300 0 00003
                               PAX 16.2
00656 0 73400 2 00020
00657 0 50000 0 00755
                               CLA 9TOY
00660 -0 32000 2 00754
                               ANA MASK+7.2
00661 -0 60200 5 00123
                               ORS ROW+22.5
                               TIX JOHN+1,1,1
00662 2 00001 1 00646
                               LDQ COMMON+1
00663 0 56000 0 00001
00664 2 00010 4 00645
                               TIX JOHN,4,8
                               LXD TWELVE,4
00665 -0 53400 4 00047
00666 -3 00000 4 00702
                         MARTY TXL EXIT,4
                               TIX HAL,4,1
00667 2 00001 4 00627
                               CLA BLANK
00670 0 50000 0 00742
00671 0 60100 0 00755
                               STO 9TOY
00672 0 62200 0 00047
                               STD TWELVE
                               CAL ROW+6
00673 -0 50000 0 00103
                               COM
00674 0 76000 0 00006
00675 0 60200 0 00000
                               SLW COMMON
                               CAL ROW+7
00676 -0 50000 0 00104
00677 0 76000 0 00006
                               COM
00700 0 60200 0 00001
                               SLW COMMON+1
00701 0 02000 0 00643
                               TRA JOHN-2
                         EXIT TXL EDITH $4 $0
00702 +3 00000 4 00723
                               CLM
00703 0 76000 0 00000
                               STD PAUL
00704 0 62200 0 00636
00705 0 62200 0 00666
                               STD MARTY
```

```
TRA MARTY+1
00706 0 02000 0 00667
                               CAL COMMON
00707 -0 50000 0 00000
                         TED
                               SLW COMMON+2
00710 0 60200 0 00002
00711 -0 32000 0 00103
                               ANA ROW+6
                               SLW COMMON
00712 0 60200 0 00000
00713 -0 50000 0 00002
                                CAL COMMON+2
                               ORS ROW+6
00714 -0 60200 0 00103
                                CAL COMMON+1
00715 -0 50000 0 00001
                                SLW COMMON+2
00716 0 60200 0 00002
                                ANA ROW+7
00717 -0 32000 0 00104
                                SLW COMMON+1
00720 0 60200 0 00001
00721 -0 50000 0 00002
                                CAL COMMON+2
                                TRA JOHN-3
00722 0 02000 0 00642
                         EDITH LXA SIXADR + 4
00723 0 53400 4 00043
                                CLA ROW+14,4
00724 0 50000 4 00113
                                STO ROW+12+4
00725 0 60100 4 00111
                                TIX EDITH+1,4,1
00726 2 00001 4 00724
                                LXD CBOXON 4
00727 -0 53400 4 01376
                                TRA 1.4
00730 0 02000 4 00001
                         NINES OCT 111111,101010,070707,060606,050505
00731 +000000111111
00732 +000000101010
00733 +000000070707
00734 +000000060606
00735 +000000050505
                                OCT 040404,030303,020202,010101
00736 +000000040404
00737 +000000030303
00740 +000000020202
00741 +000000010101
                         BLANK OCT 606060 . 404040 . 202020
00742 +000000606060
00743 +000000404040
00744 +000000202020
                          MASK OCT 7777777,777700,770077,770000,7777,7700,77,0
00745 +000007777777
00746 +000000777700
00747 +000000770077
00750 +000000770000
00751 +000000007777
00752 +000000007700
00753 +000000000077
00754 +000000000000
00755 0 00000 0 00000
                          9TOY PZE
                         SETLIN LXA SIXADR,2
 00756 0 53400 2 00043
                                SXD POSIT 12
00757 -0 63400 2 00041
                                LDQ ROW
 00760 0 56000 0 00075
                                LXA ELEVEN,2
 00761 0 53400 2 00046
 00762 0 02000 4 00001
                                TRA 1+4
 00763 -0 63400 4 01376 CONVER SXD CBOXON:4
                                LXD POSIT,4
 00764 -0 53400 4 00041
 00765 -0 75400 0 00000
                                PXD
                                SLW COMMON
 00766 0 60200 0 00000
                                LGL 6
 00767 -0 76300 0 00006
                                CAS BLANKK
 00770 0 34000 0 00051
                                                         5252ERROR INDICATION
                                HPR 2730
 00771 0 42000 0 05252
 00772 0 76000 0 00000
                                CLM
                                SLW COMMON+1
 00773 0 60200 0 00001
                                MSE 98
 00774 -0 76000 0 00142
```

```
00775 0 02000 0 01007
                               TRA CRAWL-1
00776 0 76000 0 00000
                               CLM
00777 2 00001 4 01003
                               TIX CREEP,4,1
01000 0 53400 4 00043
                               LXA SIXADR.4
01001 0 56000 2 00111
                               LDQ ROW+12.2
01002 -2 00001 2 01003
                               TNX CREEP,2,1
01003 -2 00001 1 01026
                         CREEP TNX RUN+1,1,1
01004 -0 76300 0 00006
                               LGL 6
01005 0 60200 0 00000
                               SLW COMMON
01006 0 02000 0 00777
                               TRA CREEP-4
01007 -0 32000 0 00050
                               ANA OCT17
01010 0 40000 0 00000
                         CRAWL ADD COMMON
01011 0 60200 0 00000
                               SLW COMMON
01012 2 00001 4 01016
                               TIX WALK +4+1
01013 0 53400 4 00043
                               LXA SIXADR,4
01014 0 56000 2 00111
                               LDQ ROW+12.2
01015 -2 00001 2 01016
                               TNX WALK, 2,1
01016 -2 00001 1 01026
                         WALK
                              TNX RUN+1,1,1
01017 0 16200 0 01037
                               TQP JUMP+2
01020 -0 76300 0 00006
                               LGL 6
01021 2 00001 4 01025
                               TIX RUN,4,1
01022 0 53400 4 00043
                               LXA SIXADR,4
01023 0 56000 2 00111
                               LDQ ROW+12,2
01024 -2 00001 2 01025
                               TNX RUN,2,1
01025 2 00001 1 01020
                               TIX WALK+2,1,1
01026 -0 63400 4 00041
                               SXD POSIT.4
01027 0 50000 0 00052
                               CLA STEST
01030 -0 32000 0 00001
                               ANA COMMON+1
01031 0 10000 0 01034
                               TZE JUMP-1
01032 0 50200 0 00000
                               CLS COMMON
01033 0 02000 0 01035
                               TRA JUMP
01034 0 50000 0 00000
                               CLA COMMON
01035 -0 53400 4 01376
                               LXD CBOXON,4
01036 0 02000 4 00001
                               TRA 1.4
01037 0 76700 0 00002
                               ALS 2
01040 0 40000 0 00000
                               ADD COMMON
01041 0 76700 0 00001
                               ALS 1
01042 0 60200 0 00000
                               SLW COMMON
01043 0 76000 0 00000
                               CLM
01044 -0 76300 0 00006
                               LGL 6
01045 0 02000 0 010/0
                               TRA CRAWL
01046 -0 63400 4 01377
                       BPUNCH SXD CBOXTW,4
01047 0 60100 0 00000
                               STO COMMON
01050 -0 73400 3 00026
                               PDX 22,3
01051 0 77100 0 00022
                               ARS 18
01052 0 40000 0 00000
                               ADD COMMON
01053 0 62100 0 01067
                               STA BPUNCH+17
01054 0 62100 0 01076
                               STA BPUNCH+24
01055 0 16200 0 01060
                               TQP BPUNCH+10
01056 0 76500 0 00000
                               LRS
01057 -0 60000 0 00000
                               STQ COMMON
01060 0 53400 4 01050
                               LXA BPUNCH+2,4
01061 0 76600 0 00341
                               WRS 225
01062 -2 00026 1 01065
                               TNX BPUNCH+15,1,22
01063 -0 63400 4 00000
                               SXD COMMON.4
```

```
TXI BPUNCH+16,1,22
01064 1 00026 1 01066
                               SXD COMMON:1
01065 -0 63400 1 00000
                               CAL COMMON
01066 -0 50000 0 00000
01067 0 36100 1 00000
                               ACL 0,1
                               TNX BPUNCH+20,1,1
01070 -2 00001 1 01072
01071 2 00001 4 01067
                               TIX BPUNCH+17,4,1
01072 0 60200 0 00001
                               SLW COMMON+1
01073 -0 53400 4 00000
                               LXD COMMON 4
                               CPY COMMON
01074 0 70000 0 00000
01075 0 70000 0 00001
                               CPY COMMON+1
01076 0 70000 2 00000
                               CPY 0,2
01077 -2 00001 2 01105
                               TNX BPUNCH+31,2,1
01100 2 00001 4 01076
                               TIX BPUNCH+24,4,1
                               CLA COMMON
01101 0 50000 0 00000
                               SUB BPUNCH+2
01102 0 40200 0 01050
01103 0 62100 0 00000
                               STA COMMON
                               TRA BPUNCH+10
01104 . 0 02000 0 01060
01105 -0 53400 4 01377
                               LXD CBOXTW.4
01106 0 02000 4 00001
                               TRA 1.4
                       DTOBCV SXD CBOXON,4
01107 -0 63400 4 01376
                               LXD POSIT 4
01110 -0 53400 4 00041
01111 0 50000 0 01300
                               CLA NOUGHT
                               SLW COMMON
01112 0 60200 0 00000
01113 -0 76300 0 00006
                               LGL 6
01114 0 34000 0 00051
                               CAS BLANKK
                               HPR 2730
                                                       5252 ERROR INDICATION
01115 0 42000 0 05252
                               CLM
01116 0 76000 0 00000
                               SLW COMMON+2
01117 0 60200 0 00002
01120 0 76000 0 00000
                               CLM
01121 0 76000 0 00142
                               SLN 2
01122 0 02000 0 01126
                               TRA SAID
01123 -0 76300 0 00006
                               LGL 6
                               ADD COMMON
01124 0 40000 0 00000
                               SLW COMMON
01125 0 60200 0 00000
01126 2 00001 4 01132
                              TIX THAT, 4,1
                         SAID
01127 0 53400 4 00043
                               LXA SIXADR,4
01130 0 56000 2 00111
                               LDQ ROW+12.2
01131 -2 00001 2 01132
                               TNX THAT , 2 , 1
01132 0 16200 0 01143
                               TOP SHE
                               SLT 2
01133 -0 76000 0 00142
01134 0 02000 0 01151
                               TRA KNEW
01135 0 60200 0 00001
                               SLW COMMON+1
01136 -0 76300 0 00006
                               LGL 6
                               CLM
01137 0 76000 0 00000
                               SLW COMMON
01140 0 60200 0 00000
01141 0 53400 1 01300
                               LXA NOUGHT +1
                               TRA SAID
01142 0 02000 0 01126
01143 0 76700 0 00002
                               ALS 2
01144 0 40000 0 00000
                               ADD COMMON
01145 0 76700 0 00001
                               ALS 1
                               SLW COMMON
01146 0 60200 0 00000
01147 0 76000 0 00000
                               CLM
01150 1 00001 1 01123
                               TXI WHO,1,1
01151 0 56000 1 00064
                         KNEW LDQ RFACTR,1
01152 0 22000 1 00074
                               DVH POWTEN.1
```

```
01153 0 50000 0 00002
                               CLA COMMON+2
01154 -0 32000 0 00052
                               ANA STEST
01155 0 10000 0 01160
                               TZE ABOUT
01156 0 50200 0 00001
                               CLS COMMON+1
01157 0 02000 0 01161
                               TRA MALES
01160 0 50000 0 00001
                         ABOUT CLA COMMON+1
01161 0 76500 0 00000
                         MALES LRS 0
01162 -0 53400 4 01376
                               LXD CBOXON,4
01163 0 02000 4 00001
                               TRA 1.4
01164 -0 63400 4 01376
                        SPECIL SXD CBOXON.4
01165 -0 53400 4 00041
                               LXD POSIT.4
01166 0 53400 1 00042
                               LXA FOURAD,1
01167 -0 75400 0 00000
                               PXD
                                                       CLEAR ACC
01170 0 60200 0 00000
                               SLW COMMON
01171 -0 76300 0 00006
                               LGL 6
01172 0 34000 0 00051
                               CAS BLANKK
01173 0 42000 0 05252
                               HPR 2730
                                                       5252 ERROR INDICATION
01174 0 76000 0 00000
                               CLM
01175 0 60200 0 00002
                               SLW COMMON+2
01176 0 76000 0 00142
                               PSE 98
01177 2 00001 4 01203
                         THERE TIX WASA,4,1
01200 0 53400 4 00043
                               LXA SIXADR,4
01201 0 56000 2 00111
                               LDQ ROW+12.2
01202 -2 00001 2 01203
                               TNX WASA . 2 . 1
01203 -0 76300 0 00006
                              LGL 6
01204 -0 32000 0 00050
                               ANA OCT17
01205 0 40000 0 00000
                               ADD COMMON
01206 -2 00001 1 01215
                               TNX YOUNG,1,1
01207 0 60200 0 00000
                               SLW COMMON
01210 0 76700 0 00002
                               ALS 2
01211 0 40000 0 00000
                               ADD COMMON
01212 0 76700 0 00001
                               ALS 1
01213 0 60200 0 00000
                               SLW COMMON
01214 0 02000 0 01177
                               TRA THERE
01215 -0 76000 0 00142
                         YOUNG MSE 98
01216 0 02000 0 01224
                               TRA LADY
01217 0 60200 0.00001
                               SLW COMMON+1
01220 0 53400 1 00044
                               LXA SEVEN 1
01221 0 76000 0 00000
                               CLM
01222 0 60200 0 00000
                               SLW COMMON
01223 0 02000 0 01177
                               TRA THERE
01224 0 56000 0 00053
                         LADY LDQ ROUNDR
01225 0 22000 0 00054
                               DVH 10T06
01226 0 50000 0 00002
                               CLA COMMON+2
01227 -0 32000 0 00052
                               ANA STEST
01230 0 10000 0 01233
                               TZE FROM
01231 0 50200 0 00001
                               CLS COMMON+1
01232 0 02000 0 01234
                               TRA YALE
01233 0 50000 0 00001
                         FROM CLA COMMON+1
01234 0 76500 0 00000
                         YALE LRS O
01235 -0 53400 4 01376
                               LXD CBOXON,4
01236 0 02000 4 00001
                               TRA 1,4
01237 0 76400 0 00201
                               BST 1
01240 0 42000 0 04444
                         CURSE HPR 2340
                                                      4444 ERROR INDICATION
01241 0 76200 0 00201
                        RDBCDT RTD 1
                                                     READ BCD TAPE
```

```
TO ROW
                               LXA 14ADR 1
01242 0 53400 1 01253
01243 0 70000 1 00113
                               CPY ROW+14,1
                               TIX CURSE+3,1,1
01244 2 00001 1 01243
01245 0 76600 0 00333
                               IOD
01246 0 77100 0 00355
                               ARS 237
01247 0 77100 0 00355
                               ARS 237
01250 -0 76000 0 00012
                               RTT
01251 0 02000 0 01237
                               TRA CURSE-1
01252 0 02000 4 00001
                               TRA 1,4
01253 +000000000016
                         14ADR DEC 14
                 00113
                               ORG ROW+14
00113 0 07400 4 00602
                        START2 TSX SELECT:4
                        RHSIDE TSX READIN, 4
00114 0 07400 4 00606
                               CLA ROW
00115 0 50000 0 00075
00116 0 40200 0 00036
                               SUB NEXTB
00117 0 10000 0 00261
                               TZE BREAK
00120 0 50000 0 00075
                               CLA ROW
00121 0 40200 0 00035
                               SUB MATRIX
00122 0 10000 0 00261
                               TZE BREAK
00123 0 50000 0 00075
                               CLA ROW
00124 0 40200 0 00034
                               SUB NOMATR
                               TZE BREAK
00125 0 10000 0 00261
00126 0 07400 4 00602
                               TSX SELECT,4
00127 0 07400 4 00756
                               TSX SETLIN.4
00130 0 53400 1 00043
                               LXA SIXADR.1
00131 0 07400 4 00763
                               TSX CONVER,4
00132 0 53400 1 01303
                               LXA THREEA,1
                               TSX CONVER:4
00133 0 07400 4 00763
00134 0 76700 0 00001
                               ALS 1
00135 0 40000 0 01341
                               ADD WORIGN
                               STA SAVHI+4
00136 0 62100 0 00175
00137 0 40000 0 01301
                               ADD ONEADR
00140 0 62100 0 00176
                               STA SAVHI+5
                               SUB WORIGN
00141 0 40200 0 01341
                               SUB 2MAPD2
00142 0 40200 0 01335
00143 -0 12000 0 00145
                               TMI CARRY
                               HPR 4088
00144 0 42000 0 07770
00145 -0 50000 0 00040
                         CARRY CAL SENSES
                                                       SENSE BIT 2
                                                       INDICATES NEW OR
00146 0 76700 0 00001
                               ALS 1
00147 -0 76000 0 00001
                               PBT
                                                       OLD FORMAT
00150 0 02000 0 00153
                               TRA OK
00151 0 07400 4 01164
                               TSX SPECIL,4
00152 0 02000 0 00154
                               TRA OK+1
                               TSX DTOBCV:4
00153 0 07400 4 01107
                               STQ COMMON
00154 -0 60000 0 00000
00155 0 76500 0 00023
                               LRS 19
00156 0 10000 0 00164
                               TZE OKA
00157 0 76300 0 00013
                               LLS 11
00160 -0 50100 0 00202
                               ORA BIGCH
                               STO COMMON
00161 0 60100 0 00000
00162 0 50000 0 00203
                               CLA 136ADR
                               TRA SAVHI+2
00163 .0 02000 0 00173
00164 0 76300 0 00023
                         OKA
                               LLS 19
00165 0 56000 0 00000
                               LDQ COMMON
00166 0 76300 0 00010
                               LLS 8
```

```
00167 0 10000 0 00171
                                TZE SAVHI
 00170 -0 50100 0 00200
                                ORA HICHAR
 00171 0 60100 0 00000
                         SAVHI STO COMMON
 00172 0 50000 0 00201
                                CLA LOCHAR
 00173 0 76300 0 00033
                               LLS 27
 00174 0 30000 0 00000
                                FAD COMMON
00175 0 60100 0 00000
                               STO
 00176 -0 60000 0 00000
                                STQ
00177 0 02000 0 00114
                                TRA RHSIDE
00200 +223000000000
                        HICHAR OCT 22300000000
00201 +000000000170
                        LOCHAR DEC 120
00202 +243000000000
                         BIGCH OCT 243000000000
00203 +000000000210
                         136ADR DEC 136
00204 -0 63400 4 01376
                        PUNCHB SXD CBOXON.4
00205 0 50000 0 00042
                               CLA FOURAD
00206 -0 32000 0 00040
                               ANA SENSES
00207 -0 10000 0 00257
                               TNZ PUN
00210 0 50000 0 00031
                               CLA SUMROW
00211 0 73400 2 00000
                               PAX 0.2
00212 0 76700 0 00001
                               ALS 1
00213 0 40000 0 01341
                               ADD WORIGN
00214 0 62100 0 00255
                               STA PUN-2
00215 0 40000 0 01301
                               ADD ONEADR
00216 0 62100 0 00256
                               STA PUN-1
00217 0 53400 1 01335
                               LXA 2MAND2,1
00220 0 50000 0 01341
                               CLA WORIGN
00221 0 40000 0 01335
                               ADD 2MAND2
00222 0 62100 0 00246
                               STA PUN-9
00223 0 40000 0 01301
                               ADD ONEADR
00224 0 62100 0 00250
                               STA PUN-7
00225 1 00001 2 00226
                               TXI PUNK . 2 . 1
00226 2 00002 1 00227
                               TIX PUNK+1.1.2
00227 2 00001 2 00226
                               TIX PUNK, 2,1
00230 0 14000 0 00231
                               TOV PUNK+3
00231 -0 75400 1 00000
                               PXD 0,1
00232 0 77100 0 00001
                               ARS 1
00233 -0 73400 2 00000
                               PDX 0,2
00234 0 50000 0 01340
                               CLA VORIGN
00235 0 62100 0 00242
                               STA EMPTY
00236 0 76000 0 00000
                               CLM
00237 0 56000 0 01300
                               LDQ NOUGHT
00240 0 60100 0 00000
                               STO COMMON
00241 -0 60000 0 00001
                               STQ COMMON+1
00242 0 50000 2 00000
                         EMPTY CLA 0.2
00243 2 00001 2 00244
                               TIX EMPTY+2,2,1
00244 0 10000 0 00246
                               TZE EMPTY+4
00245 0 12000 0 00253
                               TPL PUN-4
00246 0 50200 1 00000
                               CLS 0.1
00247 0 10000 0 00253
                              TZE PUN-4
00250 0 56000 1 00000
                               LDQ 0.1
00251 0 76500 0 00000
                               LRS
00252 0 07400 4 00371
                              TSX DPFADD.4
00253 0 50000 0 00000
                              CLA COMMON
00254 2 00002 1 00240
                              TIX EMPTY-2.1.2
00255 0 60100 0 00000
                              STO
```

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```
00256 -0 60000 0 00000
                               STQ
00257 -0 53400 4 01376
                         PUN
                               LXD CBOXON,4
00260 0 02000 4 00001
                               TRA 1,4
00261 0 07400 4 00204
                                                     GO SUM RIGHT HAND SIDE
                         BREAK TSX PUNCHB.4
00262 0 50000 0 00040
                               CLA SENSES
00263 0 76000 0 00001
                               LBT
00264 0 02000 0 00305
                               TRA STKHV
00265 0 76600 0 00341
                               WPU
00266 0 50000 0 01336
                               CLA 2MAN2D
00267 0 40000 0 01341
                               ADD WORIGN
00270 0 76500 0 00000
                               LRS
00271 0 07400 4 01046
                               TSX BPUNCH,4
00272 0 50000 0 01341
                               CLA WORIGN
00273 0 40000 0 01335
                               ADD 2MAND2
00274 0 62100 0 00277
                               STA CLRW
                               LXA 2MAND2.4
00275 0 53400 4 01335
00276 0 76000 0 00000
                               CLM
00277 0 60200 4 00000
                         CLRW SLW 0,4
00300 2 00001 4 00277
                               TIX CLRW,4,1
00301 0 50000 0 00075
                               CLA ROW
00302 0 40200 0 00036
                               SUB NEXTB
00303 0 10000 0 00113
                               TZE RHSIDE-1
00304 0 02000 0 00420
                               TRA STMAX
00305 -0 50100 0 01301
                         STKHV ORA ONEADR
00306 0 60100 0 00040
                               STO SENSES
00307 0 50000 0 01341
                               CLA WORIGN
00310 0 62100 0 00316
                               STA MOVEB+1
00311 0 40000 0 01335
                               ADD 2MAND2
00312 0 62100 0 00315
                               STA MOVEB
00313 0 62100 0 00322
                               STA BTODR
00314 0 53400 5 01335
                               LXA 2MAND2.5
00315 0 50000 4 00000
                         MOVEB CLA 0,4
00316 .0 60100 4 00000
                               STO 0,4
00317 2 00001 4 00315
                               TIX MOVEB 44.1
00320 0 76600 0 00304
                               WDR 4
00321 0 46000 0 01324
                               LDA BDRORG
00322 0 70000 1 00000
                         BTODR CPY 0.1
00323 2 00001 1 00322
                               TIX BTODR,1,1
00324 0 50000 0 01330
                       PREF
                               CLA HDRORG
00325 0 40200 0 01327
                               SUB KDRORG
00326 0 40000 0 01334
                               ADD 1MAND1
00327 0 60100 0 00362
                               STO COUNT
                                                       NO OF WORDS IN CONSTANTS AND H
00330 0 50000 0 01337
                               CLA HORIGN
00331 0 40000 0 01334
                               ADD 1MAPD1
00332 0 62100 0 00343
                               STA KHSUM
00333 0 62100 0 00353
                               STA K2DRM
00334 0 50000 0 01340
                               CLA VORIGN
00335 0 40000 0 01335
                               ADD 2MAND2
00336 0 62100 0 00346
                               STA VSUM
00337 0 62100 0 00357
                               STA K2DRM+4
00340 0 50000 0 01300
                         STSOL CLA NOUGHT
00341 0 60100 0 01377
                               STO CBOXTW
00342 0 53400 3 00362
                               LXA COUNT . 3
00343 0 36100 1 00000
                         KHSUM ACL 0,1
00344 2 00001 1 00343
                               TIX KHSUM,1,1
```

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```
LXA 2MAND2.5
00345 0 53400 5 01335
00346 0 36100 1 00000
                              ACL 0,1
                        VSUM
00347 2 00001 1 00346
                               TIX VSUM,1,1
.00350 0 60200 0 01377
                               SLW CBOXTW
00351 0 76600 0 00301
                               WDR 1
                               LDA KDRORG
00352 0 46000 0 01327
                         K2DRM CPY 0.2
00353 0 70000 2 00000
00354 2 00001 2 00353
                               TIX K2DRM . 2 . 1
00355 0 76600 0 00301
                               WDR 1
00356 0 46000 0 01331
                               LDA VDRORG
00357 0 70000 4 00000
                               CPY 0.4
00360 2 00001 4 00357
                               TIX K2DRM+4,4,1
00361 0 02000 0 00272
                               TRA CLRW-5
00362 0 00000 0 00000
                        COUNT HTR
00363 0 77200 0 00205
                               REW 5
00364 0 50000 0 00370
                        RECALL CLA RECALL+4
00365 0 62200 0 00576
                               STD STASH+2
00366 0 62100 0 00601
                               STA STASH+5
00367 0 02000 0 00574
                               TRA STASH
00370 0 76200 0 00113
                               RDS START
                                                       ADDEND IN ACC-MQ, AUGEND IN
00371 -0 60000 0 00002
                       DPFADD STQ COMMON+2
00372 0 30000 0 00000
                               FAD COMMON
                                                                 COMMON-COMMON+1
                                                       LO-PART OVERFLOW IMPOSSIBLE
00373 0 16100 0 00414
                               TQO ADOVFL+2
                                                       IF HI-PART ZERO SO IS LO-PART FOR
00374 0 60100 0 00003
                               STO COMMON+3
                                                                 NORMALIZED NUMBERS
00375 -0 60000 0 00004
                               STQ COMMON+4
                               CLA COMMON+2
00376 0 50000 0 00002
00377 0 30000 0 00001
                               FAD COMMON+1
                       ADUNFL PBT
00400 -0 76000 0 00001
                                                       OVERFLOW IMPOSSIBLE ON LO-PARTS
00401 0 02000 0 00404
                               TRA ADUNFL+4
                               CLM
                                                       UNDERFLO IMPOS IF HI-PARTS OVERFLOWED
00402 0 76000 0 00000
                                                       CLEAR ACC TOGGLE
00403 0 14000 0 00404
                               TOV ADUNFL+4
                               UFA COMMON+4
00404 -0 30000 0 00004
00405 0 16100 0 00406
                               TQO ADUNFL+6
                                                       CLEAR MQ TUGGLE
                               FAD COMMON+3
00406 0 30000 0 00003
00407 -0 60000 0 00002
                               STQ COMMON+2
                                                       ALIGN CHARACTERISTICS
00410 0 30000 0 00002
                               FAD COMMON+2
00411 0 16100 0 00414
                               TQO ADOVFL+2
                       ADOVFL TNO ADOVFL+5
00412 -0 14000 0 00417
00413 0 02000 4 00001
                               TRA 1,4
00414 0 50000 0 01300
                               CLA NOUGHT
00415 0 56000 0 01300
                               LDQ NOUGHT
                                                       CLR TOGGLE AFTER DOUBLE UNDFLO
00416 0 14000 0 00417
                               TOV ADOVEL+5
00417 0 02000 4 00002
                               TRA 2,4
00420 0 50000 0 01340
                         STMAX CLA VORIGN
00421 0 40000 0 01346
                               ADD PRICEX
00422 0 62100 0 00425
                               STA STMAX+5
00423 0 40000 0 01301
                               ADD ONEADR
00424 0 62100 0 00426
                               STA STMAX+6
00425 0 50000 0 00000
                               CLA
00426 0 56000 0 00000
                               LDQ
00427 0 60100 0 01372
                               STO HIMAXV
00430 -0 60000 0 01373
                               STQ LOMAXV
00431 0 02000 0 00363
                               TRA RECALL-1
                               ORG ROW+14
                 00113
00113 0 76200 0 00321
                         START RCD
```

```
00114 0 70000 0 00040
                               CPY SENSES
00115 0 76000 0 00140
                               SLF
00116 0 76300 0 00000
                               LLS 0
00117 -0 12000 0 00121
                               TMI REW5
00120 0 77200 0 00201
                               REW 1
00121 0 77200 0 00205
                        REW5
                              REW 5
00122 0 07400 4 00602
                               TSX SELECT,4
00123 0 07400 4 00606
                               TSX READIN:4
00124 0 56000 0 00075
                               LDQ ROW
00125 -0 76300 0 00005
                               LGL 5
                              CLA ONEADR
00126 0 50000 0 01301
                              LRS 5
00127 0 76500 0 00005
00130 -0 60000 0 00075
                               STQ ROW
00131 0 76600 0 00303
                         ID2DR WDR 3
00132 -0 53400 4 00032
                               LXD HEDADR,4
00133 0 70000 4 00111
                              CPY ROW+12,4
00134 2 00001 4 00133
                               TIX ID2DR+2,4,1
00135 0 07400 4 00602
                               TSX SELECT,4
00136 0 07400 4 00606
                               TSX READIN,4
00137 0 07400 4 00756
                               TSX SETLIN:4
00140 0 53400 1 00045
                               LXA TENADR,1
00141 0 07400 4 00763
                               TSX CONVER:4
00142 0 40000 0 01301
                               ADD ONEADR
00143 0 62100 0 01334
                               STA 1MAND1
00144 0 76700 0 00001
                               ALS 1
00145 0 62100 0 01335
                               STA 2MAND2
00146 0 76700 0 00022
                               ALS 18
00147 0 62200 0 01336
                               STD 2MAN2D
00150 0 76700 0 00001
                               ALS 1
00151 0 62200 0 00232
                               STD CLEAR+1
00152 0 50000 0 01337
                               CLA HORIGN
00153 0 62100 0 00030
                               STA BHEDNG
00154 0 40000 0 01334
                               ADD 1MAND1
00155 0 60100 0 01340
                               STO VORIGN
00156 0 40000 0 01335
                               ADD 2MAND2
00157 0 60100 0 01341
                               STO WORIGN
00160 0 40000 0 01335
                               ADD 2MAND2
00161 0 62100 0 00234
                               STA CLEAR+3
00162 0 53400 1 00045
                               LXA TENADR 1
00163 0 07400 4 00763
                               TSX CONVER,4
00164 0 60100 0 01343
                               STO FAZTYP
00165 0 53400 1 00045
                               LXA TENADR 1
00166 0 07400 4 00763
                               TSX CONVER,4
00167 0 60100 0 01345
                               STO FAZNUM
00170 0 76700 0 00001
                               ALS 1
00171 0 60100 0 01347
                               STO FEASYX
00172 0 40200 0 01302
                               SUB TWOADR
00173 0 60100 0 01346
                               STO PRICEX
00174 0 50000 0 01353
                               CLA DR3END
00175 0 40200 0 01335
                               SUB 2MAND2
00176 0 60100 0 01353
                               STO DR3END
00177 0 53400 1 00045
                               LXA TENADR:1
00200 0 07400 4 00763
                               TSX CONVER:4
                               STO SUMROW
00201 0 60100 0 00031
00202 0 50000 0 00102
                               CLA ROW+5
```

```
*00203 0 12000 0 00206
                                TPL SKIPSR
 00204 0 50000 0 00042
                                CLA FOURAD
 00205 -0 60200 0 00040
                                ORS SENSES
 00206 0 53400 1 00045
                        SKIPSR LXA TENADR 1
 00207 0 07400 4 00763
                                TSX CONVER:4
 00210 0 60100 0 01344
                                STO ARBTRS
 00211 0 53400 4 00316
                          PUNOR LXA CNTS,4
 00212 -0 50000 4 01343
                                CAL FAZTYP,4
 00213 0 60200 4 00316
                                SLW CNTS . 4
 00214 0 36100 0 00271
                                ACL ORGCD+3
 00215 0 60200 0 00271
                                SLW ORGCD+3
 00216 2 00001 4 00212
                                TIX PUNOR+1.4.1
                                CLA PUNOR+1
 00217 0 50000 0 00212
 00220 0 62100 0 00276
                                STA ORGCD+8
 00221 -0 50000 0 00276
                                CAL ORGCD+8
 00222 0 36100 0 00271
                                ACL ORGCD+3
 00223 0 60200 0 00271
                                SLW ORGCD+3
 00224 0 76600 0 00341
                                WPU
 00225 -0 53400 4 00316
                                LXD CNTS,4
 00226 0 70000 4 00316
                                CPY CNTS +4
 00227 2 00001 4 00226
                                TIX PUNOR+13,4,1
 00230 0 07400 4 00602
                                TSX SELECT:4
 00231 0 53400 4 01334
                          CLEAR LXA 1MAND1,4
                                TXI CLEAR+2.4.0
 00232 1 00000 4 00233
 00233 0 76000 0 00000
                                CLM
 00234 0 60200 4 00000
                                SLW 0,4
 00235 2 00001 4 00234
                                TIX CLEAR+3,4,1
 00236 0 07400 4 00606
                                TSX READIN,4
 00237 0 50000 0 00075
                        BASISH CLA ROW
 00240 0 40200 0 00037
                                SUB FIRSTB
 00241 0 10000 0 00317
                                TZE RECAL2-3
 00242 0 07400 4 00602
                                TSX SELECT.4
 00243 0 07400 4 00756
                                TSX SETLIN.4
 00244 0 53400 4 00044
                                LXA SEVEN,4
 00245 -0 63400 4 00044
                                SXD SEVEN.4
 00246 0 53400 1 01303
                                LXA THREEA,1
 00247 0 07400 4 00763
                                TSX CONVER,4
 00250 0 40000 0 01337
                                ADD HORIGN
 00251 0 62100 0 00260
                                STA BASISH+17
 00252 0 40200 0 01340
                                SUB VORIGN
 00253 -0 12000 0 00255
                                TMI BASISH+14
 00254 0 42000 0 07777
                                HPR 4095
 00255 0 53400 1 00043
                                LXA SIXADR 1
 00256 0 76000 0 00142
                                SLN 2
 00257 0 07400 4 00763
                                TSX CONVER,4
 00260 0 60100 0 00000
                                STO
 00261 0 53400 1 01301
                                LXA ONEADR 1
 00262 0 07400 4 00763
                                TSX CONVER,4
 00263 -0 53400 4 00044
                                LXD SEVEN.4
 00264 2 00001 4 00245
                                TIX BASISH+6,4,1
 00265 0 02000 0 00236
                                TRA BASISH-1
 00266 0 53400 4 00000
                          ORGCD LXA 0,4
 00267 0 70000 4 00002
                                CPY 2+4
 00270 1 77777 4 00001
                                TXI 1,4,-1
 00271 +000000000000
                                DEC
```

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CHECK SUM

```
00272:-0 76000 0 00007
                                LTM
LXA 11,4
 00274 -0 30000 0 00010
                                CAL B
 00275 0 56000 4 00030
                                LDQ 24.4
 00276 -0160000 4 00000
                                STQ 0,4
 00277 0 36100 4 00030
                                ACL 24+4
 00300 2 00001 4 00007
                                TIX 7,4,1
 00301 0 60200 0 00005
                                SLW 5
 00302 0 50000 0 00005
00303 0 40200 0 00003
                                CLA 5
                                SUB 3
 00304 -0 10000 0 00001
                                TNZ 1
                                                        COPY CHECK IF CH SUM ERROR
 00305 0 76200 0 00321
                                RDS 209
 00306 0 70000 0 00000
                                CPY
                                CPY 1
 00307 0 70000 0 00001
 00310 0 02000 0 00000
                                TRA
                                                        2MAN2D
 00311 +000000000000
                                DEC
 00312 +000000000000
                                DEC
                                                        HORIGN
 00313 +000000000000
                                DEC
                                                        VORIGN
 00314 +000000000000
                                DEC
                                                        WORIGN
                                                        TORIGN
 00315 +000000000000
                                DEC
                               PZE 5.0.24
 00316 0 00030 0 00005
                          CNTS
 00317 0 53400 4 01334
                                LXA 1MAND1+4
 00320 -0 63400 4 00030
                                SXD BHEDNG . 4
 00321 0 60200 0 01400
                                SLW 768
 00322 0 50000 0 00326
                         RECAL2 CLA RECAL2+4
 00323 0 62200 0 00567
                                STD STASH2+2
 00324 0 62100 0 00573
                                STA STASH2+6
 00325 0 02000 0 00565
                                TRA STASH2
```

RDS START

END START

00326 0 76200 0 00113

00113